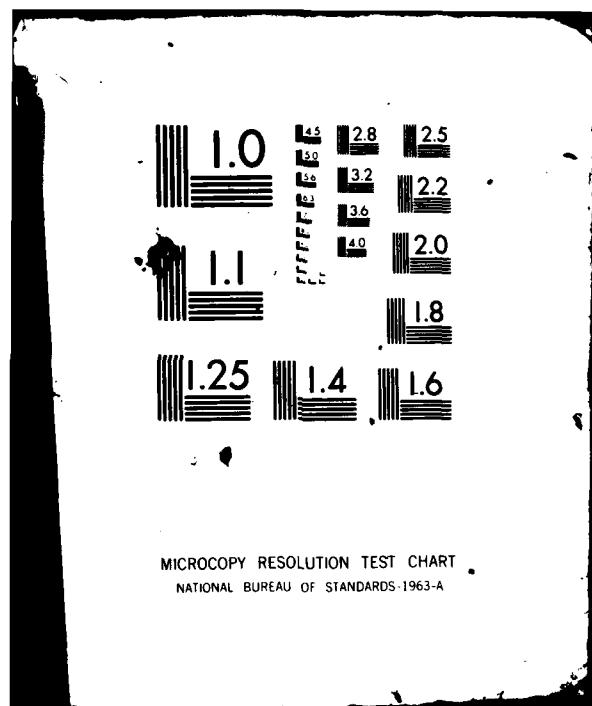


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USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK, VOLUME 163, SPC-28 C--ETC(U)
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The GPC-28 is a gasoline engine-driven compressor with a 120 volt 60 Hz generator used for general purpose maintenance. This report provides measured and extrapolated data defining the bioacoustic environments produced by this unit operating outdoors on a concrete apron at a normal rated condition. Near-field data are reported for 37 locations in a wide variety of physical and psychoacoustic measures: overall and band sound pressure levels, C-weighted and A-weighted sound levels, preferred speech interference level, perceived noise		

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level, and limiting times for total daily exposure of personnel with and without standard Air Force ear protectors. Far-field data measured at 36 locations are normalized to standard meteorological conditions and extrapolated from 10 - 1600 meters to derive sets of equal-value contours for these same seven acoustic measures as functions of angle and distance from the source. Refer to Volume 1 of this handbook, "USAF Bioenvironmental Noise Data Handbook, Vol 1: Organization, Content and Application," AMRL-TR-75-50(1) 1975, for discussion of the objective and design of the handbook, the types of data presented, measurement procedures, instrumentation, data processing, definitions of quantities, symbols, equations, applications, limitations, etc.

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PREFACE

This report was prepared by the Biodynamic Environment Branch, Air Force Aerospace Medical Research Laboratory, under Project/Task 723107, Measurement Prediction of Noise Environments of Air Force Operations.

The author gratefully acknowledges Mr. John N. Cole for his assistance in preparing this report, Mr. Robert G. Powell for his assistance in acquiring the raw data, Mr. Henry T. Mohlman and Mr. Fred Lampley of the University of Dayton for their assistance in the mechanics of data processing and Mrs. Norma Peachey who typed and prepared the graphics.

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Table of Contents

	<i>Page</i>
INTRODUCTION	3
NEAR-FIELD NOISE	4
FAR-FIELD NOISE	5

List of Tables

NEAR-FIELD NOISE

1. Measurement Location and Test Condition for Operator Noise Measurements	4
2. Measured Sound Pressure Level 1/3 Octave Band	6-8
Octave Band	9-11
3. Measures of Human Noise Exposure	12-14

FAR-FIELD NOISE

4. Measured Sound Pressure Level 1/3 Octave Band	15-16
---	-------

List of Figures

NEAR-FIELD NOISE

1. Measurement Locations	17
--------------------------------	----

FAR-FIELD NOISE

1. Measurement Locations	17
2. Normalized Noise Levels	18-19
3. Overall Sound Pressure Level — Contours	20-21
4. C-Weighted Sound Level — Contours	22-23
5. A-Weighted Sound Level — Contours	24-25
6. Perceived Noise Level — Contours	26-27
7. Speech Interference Level — Contours	28-29
8. Permissible Exposure Time — Contours	30-31
9. Octave Band Sound Pressure Level — Contours	32-49

INTRODUCTION

The GPC-28 is a gasoline engine-driven compressor with 120 volt 60 Hz generator used for general purpose maintenance. This unit is manufactured by T.A. Pelsue Company.

This volume provides measured and extrapolated data defining bioacoustic environments produced by this unit. Such data are essential to evaluate ear protection requirements, limiting personnel exposure times, voice communication capabilities, and annoyance problems associated with operations of the GPC-28.

This volume is one of a series published by the Air Force Aerospace Medical Research Laboratory (AFAMRL) under the same report number (AMRL-TR-75-50) as a multi-volume handbook that quantifies the noise environments produced at flight/ground crew locations and in surrounding communities by operations of Air Force aircraft and ground support equipment. The far-field, community-type, noise data in the handbook describe the noise produced during ground operations of aircraft, ground support equipment, and other ground-based equipment or facilities.

Volume 1 of this handbook discusses the objectives and design of the handbook, the types of data presented, measurement procedures, instrumentation, data processing, definitions of quantities, symbols, equations, applications, limitations, etc. Refer to Volume 1 (reference 1) for such information because it is not repeated in other handbook volumes.

A cumulative index lists those aerospace systems contained in the handbook, and identifies the specific volumes containing each type of environmental noise data available (i.e., inflight/flight crew and passenger noise, near-field ground crew noise, far-field/community noise). Volume numbers are assigned sequentially as individual volumes are published. This index is periodically updated as individual volumes are published and is available upon request from AFAMRL/BBE, Wright-Patterson AFB, OH 45433. Organizations on the distribution list for the handbook will automatically receive a copy of each updated index as it is generated.

Direct any questions concerning the technical data in this report and other handbook volumes to: AFAMRL/BBE, Wright-Patterson AFB, OH 45433; AUTOVON 78-53675 or 78-53664; Commercial (513) 255-3675 or (513) 255-3664.

1. Cole, John N., *USAF Bioenvironmental Noise Data Handbook, Volume 1: Organization, Content and Application, AMRL-TR-75-50(1)*, Aerospace Medical Research Laboratory, Wright-Patterson Air Force Base, Ohio, 1975.

NEAR-FIELD NOISE

MEASUREMENTS

A standard GPC-28 was operated outdoors on a concrete apron at a normal rated condition. Table 1 notes the surface meteorological conditions at the time of measurement.

Figure 1 identifies 72 noise measurement locations at a height of 1.5 meters above the concrete apron (nominal ear level of ground crew). The 0 degree reference direction passes through the tow bar. The 36 locations on the two inner circles are in the acoustic near-field of the source where the sound wave fronts generally do not spherically diverge and the source appears to be spatially distributed (i.e., not a point source). Consequently, these near-field data cannot be extrapolated to longer distances but do properly define the levels at locations close to the unit.

Near-field measurements were also made at ear level at the operator control panel. Table 1 lists the numeric alphabetic designators used on the data pages in this report to identify the operator measurement location and test conditions. The designator 1/A means operator location 1 and test condition A. Such a descriptor is essential in many handbook volumes that involve multiple combinations of location/conditions. It is used in this report to maintain format consistency.

RESULTS

The measured data presented in Table 2 define the sound pressure levels (SPL) produced by the GPC-28 unit at the 37 specified, near-field locations. This table includes the overall, 1/3 octave band, and octave band levels. From these data one can calculate the variety of measures in Table 3 which are widely used to assess the effects of noise on personnel and their performance.

For data at other intermediate near-field locations (i.e., for radial distances less than 10 meters) you can interpolate between the 72 measured data points. All near-field data are for the meteorological conditions at the time of test but are valid for all typical airbase meteorology because of the short distances over which the sound is propagated.

TABLE 1
MEASUREMENT LOCATIONS AND TEST CONDITIONS
FOR OPERATOR NOISE MEASUREMENTS

GPC-28 Compressor
Tyndall AFB, 19 June 1980
4940-80-XXX-3973, Field # G151

Measurement Location	1	Operator Control Panel
Operation	A	Compressor On
Meteorology		
Temperature		29 °C
Bar Pressure		.761 m Hg
Rel Humidity		69 %
Wind - Speed		3.1 m/sec (6 Kts)

FAR-FIELD NOISE

MEASUREMENTS

Noise measurements were also made on the same GPC-28 under the same test conditions at the outer circle locations on Figure 1. These 36 locations are in the acoustic far-field of the source where the sound wave fronts spherically diverge and the unit may be regarded as a point noise source. Under these far-field conditions, the measured data can be extrapolated to longer distances.

RESULTS

Table 4 lists the overall and 1/3 octave band SPL measured at the 36 far-field locations under the meteorological conditions at the time of the test. These data were normalized to 10 meters distance and standard meteorological conditions (15C temperature, 70% relative humidity, 0.760 meter Hg barometric pressure) and used to derive the graphic data in Figure 2 which provides a compact summary of the far-field noise characteristics of the GPC-28 in a standard format.

These measured data were also used to derive sets of equal noise contours (Figures 3 through 9) describing seven different measures of noise as a function of angle and distance from the source for standard day meteorology. Note that Figure 8 contours identify limiting exposure times for personnel. Missing data points on any of the contours are the result of eliminating measured data which contained excessive influence of spurious background noise present at the time of measurement. In some cases contour levels at these missing data points were estimated and indicated with dashed lines.

(TABLE 1 MEASURED SOUND PRESSURE LEVEL (DB)
 (2 1/3 OCTAVE BAND

) IDENTIFICATION
)
) OMEGA 3-2
) TEST BA-000-003
) RUN 01
) 06 APR 82
) PAGE F1

FREQ (HZ)	CONDITION-->	LOCATION/CONDITION													
		4 0	4 A	4 A	4 A	4 A	4 A	4 A	4 A	4 A	4 A	4 A	4 A	4 A	4 A
25															
31.5															
40															
50															
63															
80															
100		73	72<	72	70<	70<	68<	67<	59<	70<	70<	69<	67<		
125		70<	69<	68<	65<	56<	53<	52<	53<	63<	65<	64<	63<		
160		68<	67<	67<	65<	64<	60<	59<	59<	60<	60<	58<	57<		
200		65<	63<	61<	61<	62<	60<	56<	56<	58<	57<				
250		59<													
315		62<	60<	58<	58<	60<	59<	59<	57<	58<	59<	58<	61<		
400		61<	60<	60<	66	66	64	65	63	64	57<	63	65		
500		64	60	63	64	64	61	64	64	62	60	64	65		
630		57	59	61	59	59	58	60	55<	57	53<	53<	52<		
800		52<	55	57	57	57	55	55	53<	53<	55	55	56		
1000		59	60	63	63	61	58	58	56<	57	58	57	56<		
1250		57	58	61	61	62	60	61	57	56	54<	59	57		
1600		54	58	61	61	60	56	59	56	55	53	55	56		
2000		52	55	58	59	59	57	57	55	51	52	51	54		
2500		52	57	58	59	58	57	58	55	52	53	55	56		
3150		53	57	60	59	59	57	59	56	53	53	55	56		
4000		54	57	59	61	63	58	60	56	53	55	56	56		
5000		50	54	57	57	55	55	55	52	48	50	51	51		
6300		46	51	55	56	53	53	54	50	45	47	49	49		
8000		46<	53	57	57	54	55	56	52	47<	48<	50	51		
10000		44<	50	54	53	51	51	53	49	44<	45<	47<	48		
OVERALL		77	76	79	79	77	79	78	79	78	73	72			

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE I MEASURED SOUND PRESSURE LEVEL (DB)													IDENTIFICATIONS			
2 1/3 OCTAVE BAND													OMEGA 3.2			
NOISE SOURCE/SUBJECT													TEST BA-000-003			
GPC-26 COMPRESSOR													RUN 02			
NEAR FIELD NOISE LEVELS													06 APR 82			
													PAGE F2			
LOCATION/CONDITION																
FREQ	DISTANCE (M) ->	4	4	4	4	4	2	2	2	2	2	2	2	2	2	2
(HZ)	ANGLE (DFG) -->	260	280	300	320	340	0	20	40	60	80	100	120	140		
	CONDITION---->	A	A	A	A	A	A	A	A	A	A	A	A	A		
25																
31.5																
40																
50																
63																
80																
100		65<	67<	68<	70<	72<	71<	71<	73	74	75	75	73	68<		
125		64<	67<	69<	69<	71<	73	73	73	73	72<	70<	67<			
160			61<	66<	67<	68<	77	77	74	73	75	76	75	70		
200			60<	63<	65<	65<	77	75	69	74	74	72	71	69		
250		55<	58<	58<	56<	57<	68	65<	68	67	65<	62<	63<	63<		
315		59<	61<	61<	51<	62<	66	62<	65	66	64	65	63<	64		
400		62	63	60<	60<	62	64	65	65	65	63	72	68	68		
500		61	65	66	64	65	64	66	65	71	71	69	71	69		
630		55<	58	55<	56	57	62	62	63	65	66	69	66	64		
800		57	59	61	58	56	59	62	67	53	64	65	63	61		
1000		59	62	62	62	57	62	60	69	68	69	71	66	65		
1250		60	63	62	61	58	62	64	67	68	71	66	66	65		
1600		58	58	61	60	57	60	62	66	69	69	68	66	64		
2000		54	56	58	58	59	58	58	65	65	65	65	64	51		
2500		57	58	60	58	56	58	60	64	56	66	66	65	63		
3150		57	59	59	59	59	58	61	64	67	68	67	67	64		
4000		57	60	62	61	56	58	60	65	67	68	66	65	63		
5000		52	55	55	57	52	54	58	62	63	64	63	62	60		
6300		50	53	54	53	40	52	55	60	51	53	51	50	59		
8000		52	55	56	54	50	53	56	62	63	64	63	52	51		
10000		49	50	52	53	48	50	54	59	60	59	58	57	58		
OVERALL		72	75	76	76	79	84	83	84	85	85	85	85	83		

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE I MEASURED SOUND PRESSURE LEVEL (DB) 2 1/3 OCTAVE BAND												IDENTIFICATION	
NOISE SOURCE/SUBJECT		OPERATION										TEST	
GPO-28 COMPRESSOR		COMPRESSOR ON										PA-000-003	
NEAR FIELD NOISE LEVELS												RUN 03	
												US AFR 82	
												PAGE F7	
		LOCATION/CONDITION											
FRQ (HZ)	ANGLE (DEG)	200	200	200	220	240	260	280	300	320	340	OPERATOR	LOCATION
	CONDITION	A	A	A	A	A	A	A	A	A	A	TEST	CONDITION
25													
31.5		78<	78<	76<	77<	76<	76<	76<	76<	77<	77<	80<	
40													
50													
63		75<	76<	75<	75<	73<	73<	72<	73<	72<	73<	77<	
80													
100		66<	68<	67<	59<	65<	66<	67<	68<	69<	70<	74	
125			52<	62<	56<	67<	69<	71<	72<	73<	74<	79	
160		57<	73	63<	66<	62<	64<	65<	71	74	77	82	
200		65<	68	69	68	69	69	70	70	72	77	81	
250		60<	60<	65	67	69	67	66	70	66	69	72	
315		61<	61<	64	66	61	68	70	70	68	67	73	
400		65	63	64	65	63	64	66	66	64	64	71	
500		67	64	64	62	65	65	66	69	67	67	70	
630		60	60	62	59	62	64	66	62	63	63	65	
800		59	57	58	60	59	62	62	64	60	59	65	
1000		63	62	63	63	63	57	57	65	66	64	66	
1250		62	61	62	63	64	65	66	66	66	64	65	
1600		59	58	60	60	63	65	63	65	64	62	63	
2000		55	55	57	58	60	62	62	63	61	59	62	
2500		57	56	57	59	61	64	64	64	64	61	60	
3150		59	56	53	60	62	64	66	66	64	63	61	
4000		59	58	60	61	62	65	66	65	55	61	61	
5000		55	52	55	56	59	59	60	62	56	56	50	
6300		52	49	52	54	55	56	59	59	59	53	56	
8000		54	49	53	55	53	59	59	55	55	54	58	
10000		51	47<	50	52	55	65	56	57	57	53	57	
OVERALL		81	61	81	61	61	81	81	92	32	84	88	

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

MEASURED SOUND PRESSURE LEVEL (DB)													IDENTIFICATIONS		
OCTAVE BAND													TEST RA-010-003		
2		NOISE SOURCE/SUBJECT											OMEGA 3.2		
		OPERATIONS											RUN 01		
		GPC-28 COMPRESSOR											06 APR 82		
		NEAR FIELD NOISE LEVELS											PAGE J1		
LOCATION/CONDITION															
FREQ	DISTANCE (M) ->	4	4	4	4	4	4	4	4	4	4	4	4	4	4
(HZ)	ANGLE (DEG) ->	2	20	40	60	80	100	120	140	150	160	200	220	240	260
	CONDITION ->	A	A	A	A	A	A	A	A	A	A	A	A	A	A
31.5															
63															
125		75	74	74		72	72	68	60	59	71	71	70	68	
250		68	67	63		64	65	64	62	59	61	61			
500		65	64	66		63	64	65	68	67	66	62	67	68	
1000		61	62	66		66	65	63	63	59	60	61	62	61	
2000		58	61	64		64	64	62	63	60	57	58	59	60	
4000		57	61	64		64	63	62	63	58	57	58	59	59	
8000		50	56	60		60	58	58	59	55	53	52	54	54	
OVERALL		77	76	75		75	75	73	73	72	73	73	73	72	

MEASURED SOUND PRESSURE LEVEL (dB)												IDENTIFICATION			
2 OCTAVE BAND												OMEGA 3.2			
												TEST BA-000-003			
NOISE SOURCE/SUBJECT#	OPERATIONS											RUN 02			
GPC-24 COMPRESSOR	COMPRESSOR ON											06 APR 82			
NEAR FIELD NOISE LEVELS												PAGE J2			
FREQ	DISTANCE (M) ->	4	4	4	4	4	2	2	2	2	2	2	2	2	2
(HZ)	ANGLE (DEG) ->	260	200	300	520	360	0	20	40	60	80	100	120	140	160
CONDITION	-----	A	A	A	A	A	A	A	A	A	A	A	A	A	A
31.5															
63															
125		58	71	72	73	75	79	73	70	78	73	79	77	72	70
250		60	65	66	67	64	78	75	72	75	74	73	72	71	70
500		65	68	67	66	67	68	69	69	72	74	75	74	72	70
1000		63	66	66	65	62	66	69	72	72	73	73	70	69	67
2000		61	62	65	63	61	64	65	70	71	71	71	69	68	66
4000		61	63	64	64	60	62	64	69	71	72	71	70	67	65
8000		55	58	59	58	54	56	53	65	66	67	66	65	64	62
OVERALL		72	75	76	76	77	62	61	92	83	82	81	78	76	74

(-----)

(TABLE 2 MEASURED SOUND PRESSURE LEVEL (DB)) IDENTIFICATION)

(2 OCTAVE BAND)) OMEGA 3.2)

()) TEST RA-000-003)

(NOISE SOURCE/SUBJECT) (OPERATIONS)) RUN 03)

(GPC-78 COMPRESSOR) (COMPRESSOR ON))

(NEAR FIELD NOISE LEVELS) ()) 06 APR 82)

(()))) PAGE J3)

(-----)

() LOCATION/CONDITION)

(FREQ DISTANCE (M) -> 2 2 2 2 2 2 2 2 2 2 2 2 OPERATOR LOCATION)

((Hz) ANGLE (DEG) --> 160 180 200 220 240 260 280 300 320 340 TEST CONDITION)

((Hz) CONDITION--> A A A A A A A A A A A A)

())))))))))))))

(31.5)))))))))))))))

(63)))))))))))))))

(125 70 72 71 72 71 72 73 76 77 79 84)

(250 69 69 71 72 73 73 74 74 74 73 82)

(500 69 67 69 67 68 59 72 71 70 69 74)

(1000 66 65 66 67 67 70 70 70 70 67 70)

(2000 63 61 63 64 66 68 68 69 68 65 66)

(4000 63 61 63 64 66 68 69 69 68 64 65)

(8000 57 53 57 58 61 62 63 63 63 58 61)

()))))))))))))

(OVERALL 73 75 76 77 77 78 79 80 80 82 87)

(-----)

MEASURES OF HUMAN NOISE EXPOSURE												IDENTIFICATION			
3))))
NOISE SOURCE/SUBJECT												) OMEGA 3.2)))
GPC-28 COMPRESSOR												) TEST RA-000-005)))
NEAR FIELD NOISE LEVELS												) RUN 01)))
												) 06 APR 82)))
												) PAGE M1)))
LOCATION/CONDITION															
DISTANCE (M) ->	+	4	4	4	4	4	4	4	4	4	4	4	4	4	4
ANGLE (DEG) ->	0	20	40	60	80	100	120	140	150	180	200	220	240		
CONDITION ->	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
HAZARD/PROTECTION															
C-WEIGHTED OVERALL SOUND LEVEL (OASLC IN DB) AT FAR															
A-WEIGHTED OVERALL SOUND LEVEL (OASLA IN DBA) AT EAR															
MAXIMUM PERMISSIBLE TIME (T IN MINUTES) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)															
NO PROTECTION															
OASLC	77	76	78	78	78	75	77	77	77	76	73	72			
OASLA	68	69	71	72	71	70	70	58	67	66	68	68			
T	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960
MINIMUM IPL EAR MUFFS															
OASLA*	55	54	55	54	54	50	51	51	52	52	50	50			
T	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960
AMERICAN OPTICAL 1700 EAR MUFFS															
OASLA*	50	49	51	50	50	45	48	48	49	49	45	44			
T	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960
V-51R EAR PLUGS															
OASLA*	45	44	46	47	47	45	46	44	44	42	44	45			
T	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960
AMERICAN OPTICAL 1700 EAR MUFFS PLUS V-51R EAR PLUGS															
OASLA*	32	32	35	34	34	31	33	32	32	32	30	30			
T	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960
H-133 GROUND COMMUNICATION UNIT															
OASLA*	46	46	47	46	46	43	45	44	44	43	41	41			
T	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960
COMMUNICATION															
PREFERRED SPEECH INTERFERENCE LEVEL (PSIL IN DB)															
PSIL	62	63	65	65	66	66	64	65	62	61	60	62	63		
ANNOYANCE															
PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT IN PNDB)															
TONE CORRECTION (C IN DB)															
PNLT	82	84	87	87	86	86	84	85	83	86	81	83	82		
C	2	1	1	1	1	1	1	1	2	1	2	2	1		

* BASED ON CALCULATED SPL SPECTRUM UNDER PROTECTIVE DEVICE.

MEASURES OF HUMAN NOISE EXPOSURE													IDENTIFICATION			
3													) OMEGA 3.2	
) TEST BA-000-003													) PUN 02	
) 06 APR 82													) PAGE H2	

LOCATION/CONDITION																
DISTANCE (M) ->	4	4	4	4	4	2	2	2	2	2	2	2	2	2		
ANGLE (DEG) ->	260	280	300	320	340	0	20	40	50	83	100	120	140			
CONDITION ->	A	A	A	A	A	A	A	A	1	A	A	A	A			

HAZARD/PROTECTION																
C-WEIGHTED OVERALL SOUND LEVEL (OASLC IN DB) AT EAR																
A-WEIGHTED OVERALL SOUND LEVEL (OASLA IN DBA) AT EAR																
MAXIMUM PERMISSIBLE TIME (T IN MINUTES) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)																
NO PROTECTION																
OASLC	72	74	75	76	73	83	83	62	94	64	84	84	91			
OASLA	69	71	72	71	69	73	74	77	78	73	79	77	75			
T	960	960	960	960	960	960	960	960	960	960	960	960	960			

MINIMUM 2PL EAR MUFFS																
OASLC*	49	51	53	53	55	60	59	59	50	63	60	59	56			
T	960	960	960	960	960	950	960	960	960	960	960	960	960			

AMERICAN OPTICAL 1700 EAR MUFFS																
OASLC*	43	46	48	48	50	56	55	54	55	56	56	55	52			
T	960	960	960	960	960	960	960	960	960	960	960	960	960			

V-51R EAR PLUGS																
OASLC*	46	46	46	46	46	51	51	51	52	53	54	52	50			
T	960	960	960	960	960	960	960	960	960	960	960	960	960			

AMERICAN OPTICAL 1700 EAR MUFFS PLUS V-51R EAR PLUGS																
OASLC*	30	33	33	33	33	38	38	39	40	41	41	39	37			
T	960	960	960	960	960	960	960	960	960	960	960	960	960			

H-133 GROUND COMMUNICATION UNIT																
OASLC*	42	44	45	45	45	50	50	51	52	53	53	51	49			
T	960	960	960	960	960	960	960	960	960	960	960	960	960			

COMMUNICATION																
PREFERRED SPEECH INTERFERENCE LEVEL (PSIL IN DB)																
PSIL	63	65	66	65	63	66	58	70	72	72	73	71	70			

ANNNOYANCE																
PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT IN PNDdB)																
TONE CORRECTION (C IN DB)	82	86	88	87	86	88	89	92	94	94	94	93	90			
PNLT	0	2	3	2	2	1	1	2	2	1	2	2	1			

* BASED ON CALCULATED SP. SPECTRUM UNDER PROTECTIVE DEVICE.

TABLE 3 MEASURES OF HUMAN NOISE EXPOSURE												IDENTIFICATION	
3												) OMEGA 3.2	
) TEST OA-000-003												) RUN 05	
) 06 AFR 82												) PAGE M3	
NOISE SOURCE/SUBJECT													
) GPC-2A COMPRESSOR) OPERATIONS	
) COMPRESSOR ON) NEAR FIELD NOISE LEVELS	
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MEASURED SOUND PRESSURE LEVEL (DB)												IDENTIFICATIONS							
1/3 OCTAVE BAND												TEST HA-000-003							
4 DISTANCE = 10 METERS												OMEGA 1.4							
NOISE SOURCE/SUBJECT	OPERATIONS	METEOROLOGY	PHM 31																
GPU-2B COMPRESSOR	COMPRESSOR ON	TEMP = 22 C																	
FAR FIELD NOISE LEVELS		BAR PRESS = 761 MM HG	26 APR 82																
		REL HUMID = 69 %																	
			PAGE 7																
FREQ	3	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
25																			
31.5																			
40																			
50																			
63																			
80																			
100	63<	68<	66<					65<	65<										
125	63<	68<	67<																
160	63<	68<	67<					64<	65<										
200	65<	65<	62<							61<	53<								
250	56<									61<	61<								
315	53<	56<	55<					53<	54<										
400	54<	57<	53<					58<	57<										
500	53<	49<	49<					57<	54<										
630	51<	49<	48<					54<	53<										
800	51<	49<	49<					49<	49<										
1000	55<	57<	55<					56<	57										
1250	51<	50<	52<					55<	55<										
1600	47<	48<	49<					54<	53<										
2000	44<	47<	47<					54<	52<										
2500	45<	46<	50					50	50										
3150	44<	44<	48					54<	52										
4000	46	47	51					55	53										
5000	41<	44	45					51	50										
6300	39<	42	45					50	48										
8000	39<	44<						50	48<										
10000		42<						44<	44<										
OVERALL	76	74	73					70	70			67	67	63	63	65	65	66	66

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

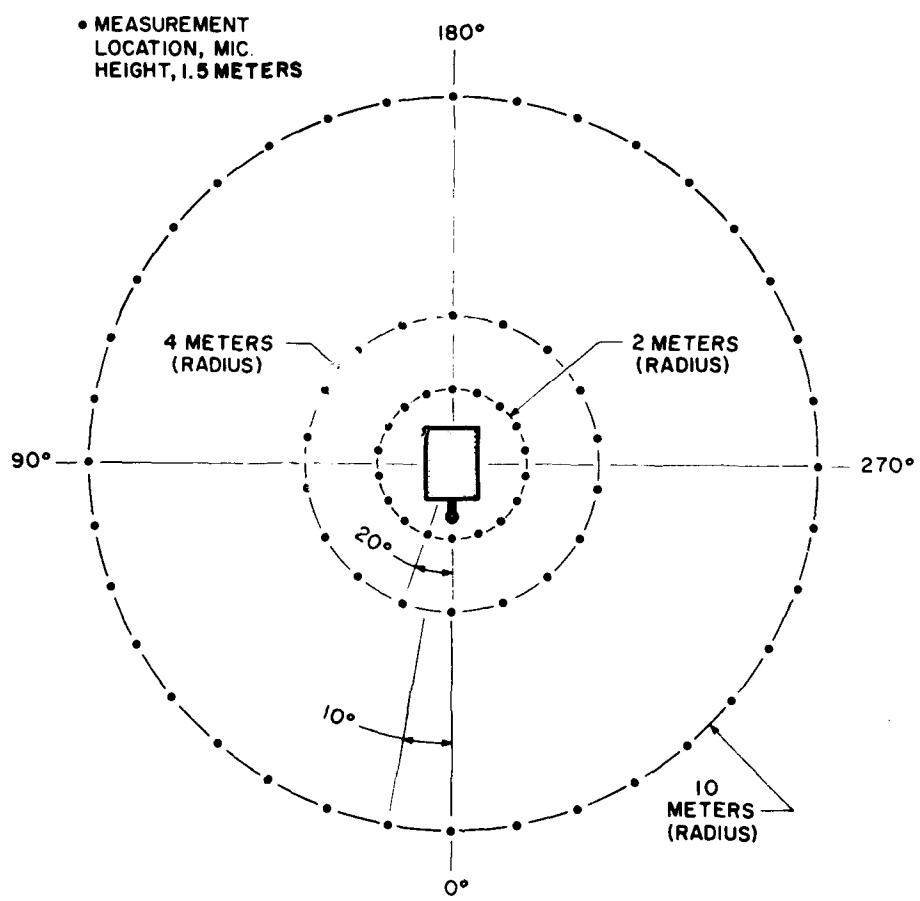


Figure 1. Measurement Locations

FIGURES: NORMALIZED FARFIELD NOISE LEVELS

2 DISTANCE = 10 METERS

(NOISE SOURCE/SUBJECT:
(GPC-2A COMPRESSOR
(FAR FIELD NOISE LEVELS
(-----

OPERATIONS
COMPRESSOR ON

1 METEOROLOGY
1 TEMP

```
IDENTIFICATION
)
1 0MEGA 1.4
4) TEST BA-103-007
3 0UN 01
)
3 06 APR 82
)
1 0PAGE 6
```

1 = 31.5 Hz

2 = 0.3 M

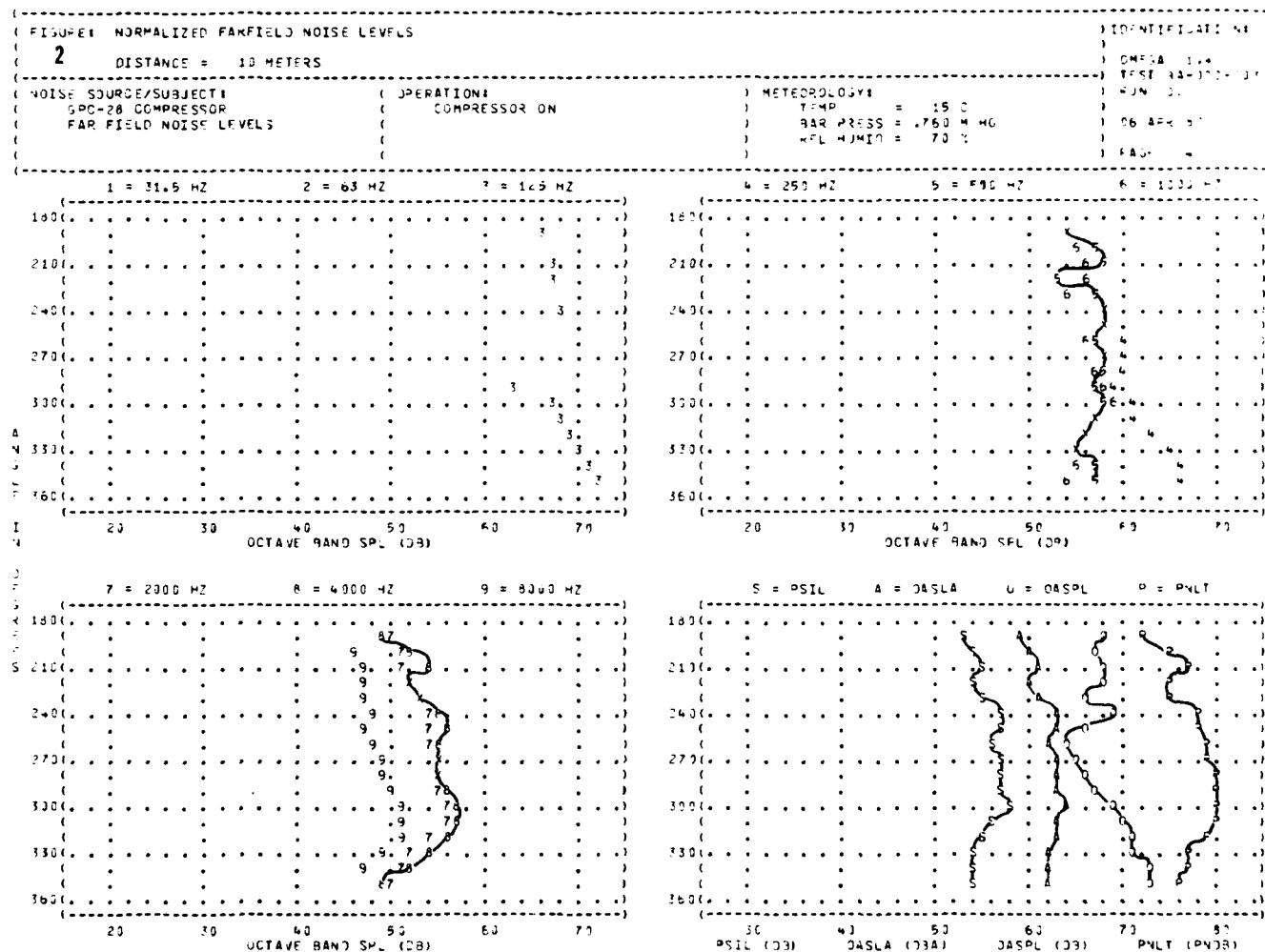
3 = 126 Hz

63

5 =

6 1

- - - - }

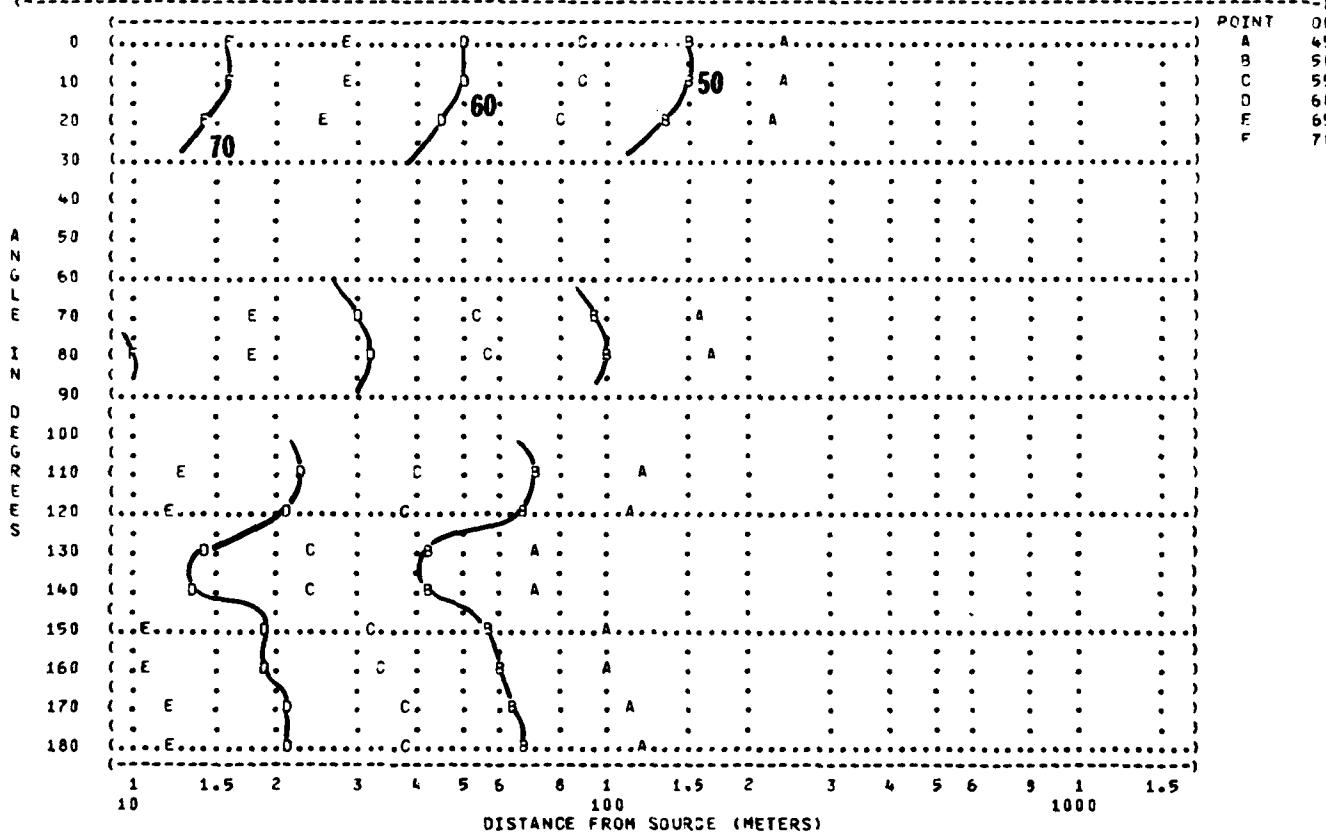


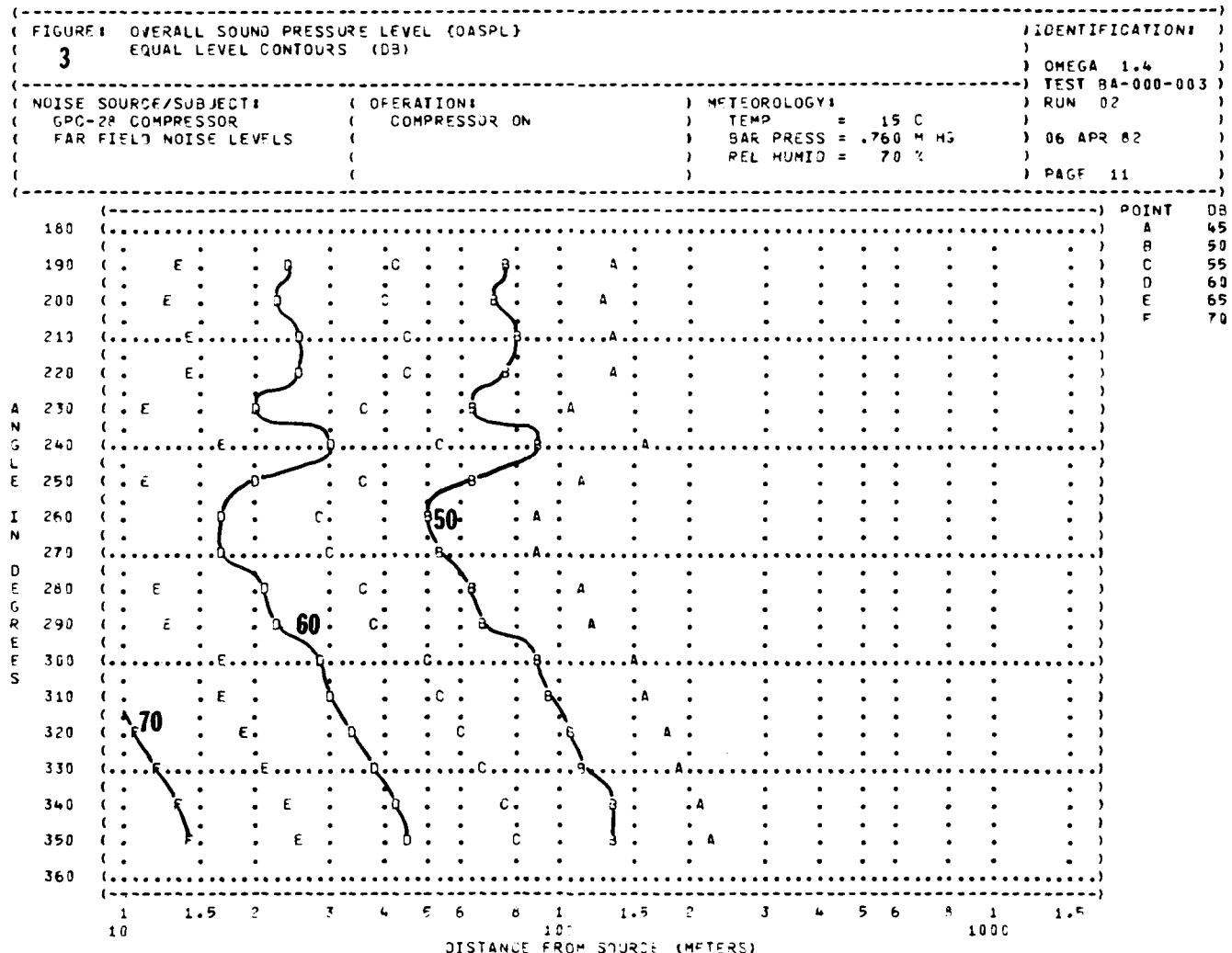
(-----)
(FIGURE 3: OVERALL SOUND PRESSURE LEVEL (OASPL)
(3 EQUAL LEVEL CONTOURS (DB))
(-----)

) IDENTIFICATION)
) OMEGA 1.4)
) TEST RA-000-003)
) RUN 01)
) 06 APR 82)
) PAGE 11)
(-----)

(NOISE SOURCE/SUBJECT: (OPERATION:
(GPC-28 COMPRESSOR (COMPRESSOR ON
(FAR FIELD NOISE LEVELS ()
(()
(-----)

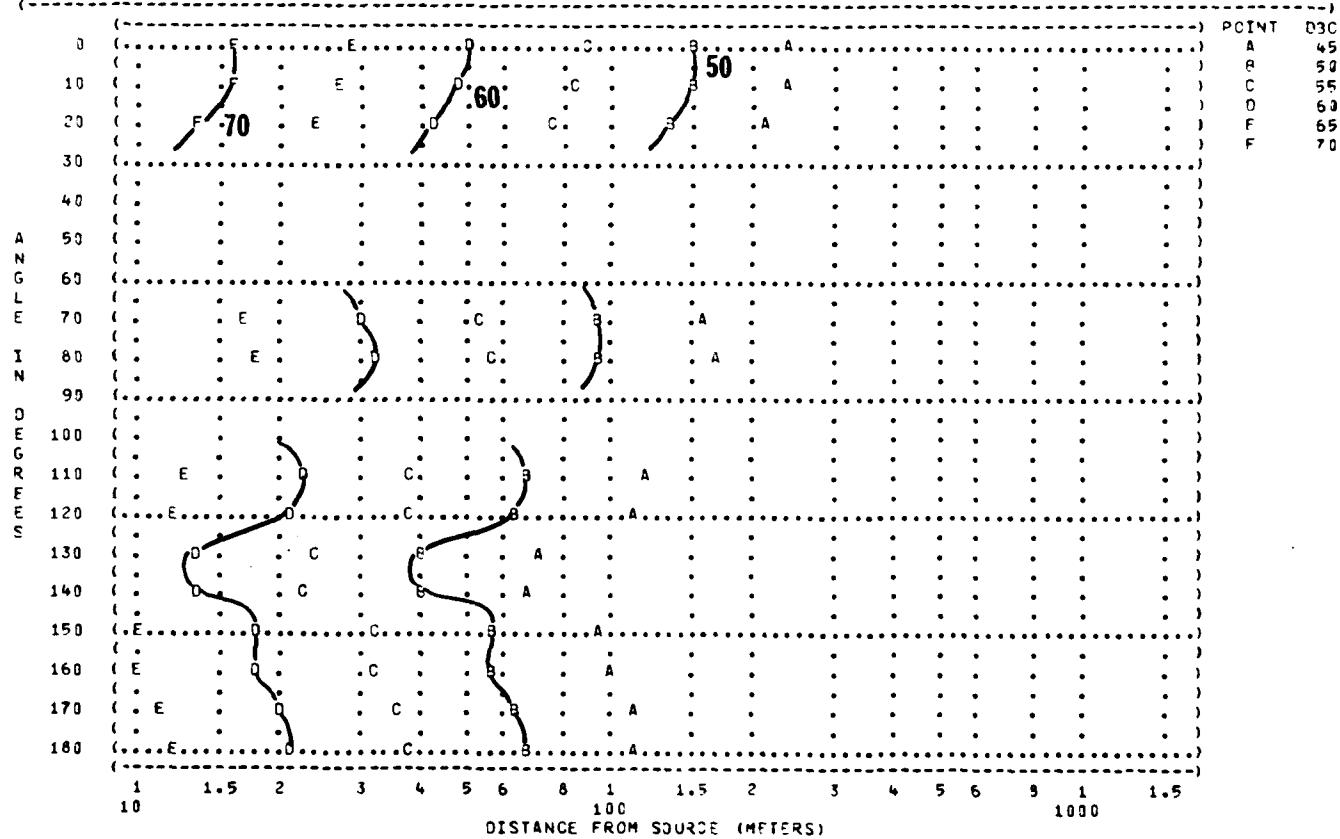
) METEOROLOGY:
) TEMP = 15 C
) BAR PRESS = .760 MM HG
) REL HUMID = 70 %
(-----)





(FIGURE: C-WEIGHTED OVERALL SOUND LEVEL (DASLC)
 (4 EQUAL LEVEL CONTOURS (DBC)) IDENTIFICATIONS)

(NOISE SOURCE/SUBJECT: GPC-28 COMPRESSOR) OPERATIONS: COMPRESSOR ON) METEOROLOGY: TEMP = 15 C) TEST BA-010-003)
 (FAR FIELD NOISE LEVELS) () () BAR PRESS = .760 M Hg) RUN 01)
 (() () REL HUMID = 70 %) 06 APR 82)
 (() ()) PAGE 12)



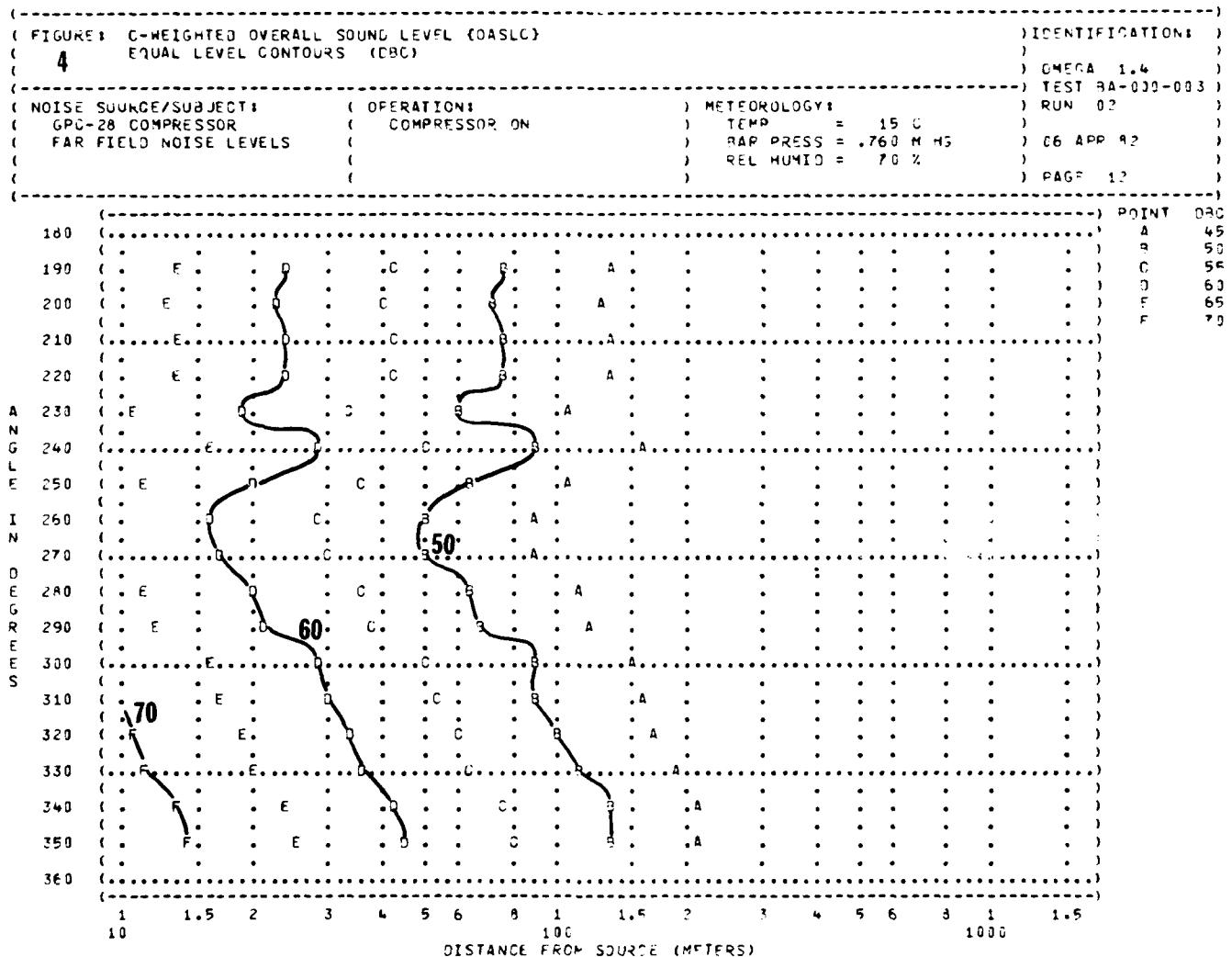
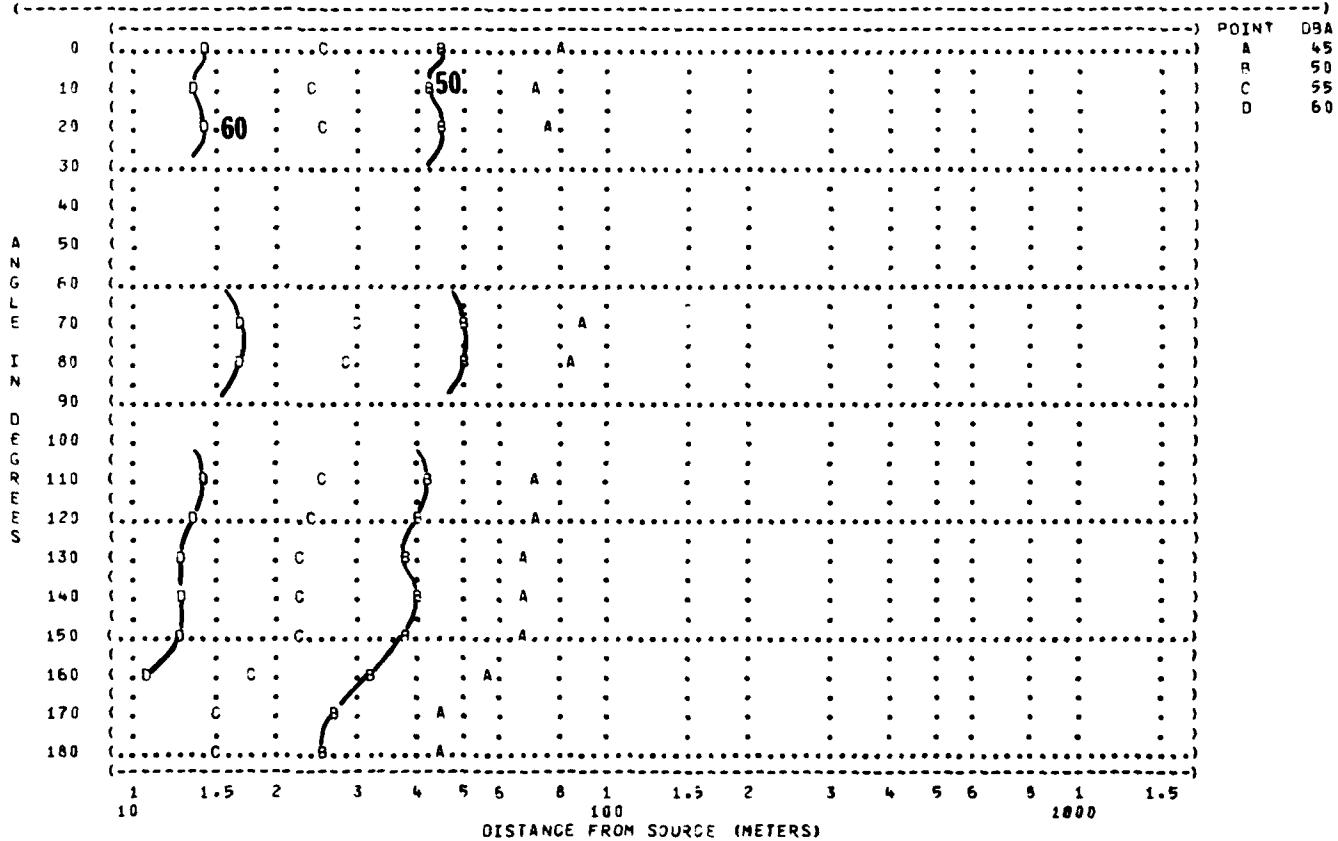


FIGURE 5 A-WEIGHTED OVERALL SOUND LEVEL (OASLA)
EQUAL LEVEL CONTOURS (DBA)

IDENTIFICATION
OMEGA 1.4
TEST RA-000-003
RUN 01
66 APR 82
PAGE 13

NOISE SOURCE/SUBJECT: GPC-28 COMPRESSOR
OPERATION: COMPRESSOR ON
FAR FIELD NOISE LEVELS

METEOROLOGY
TEMP = 15 C
BAR PRESS = .760 M HS
REL HUMID = 70 %



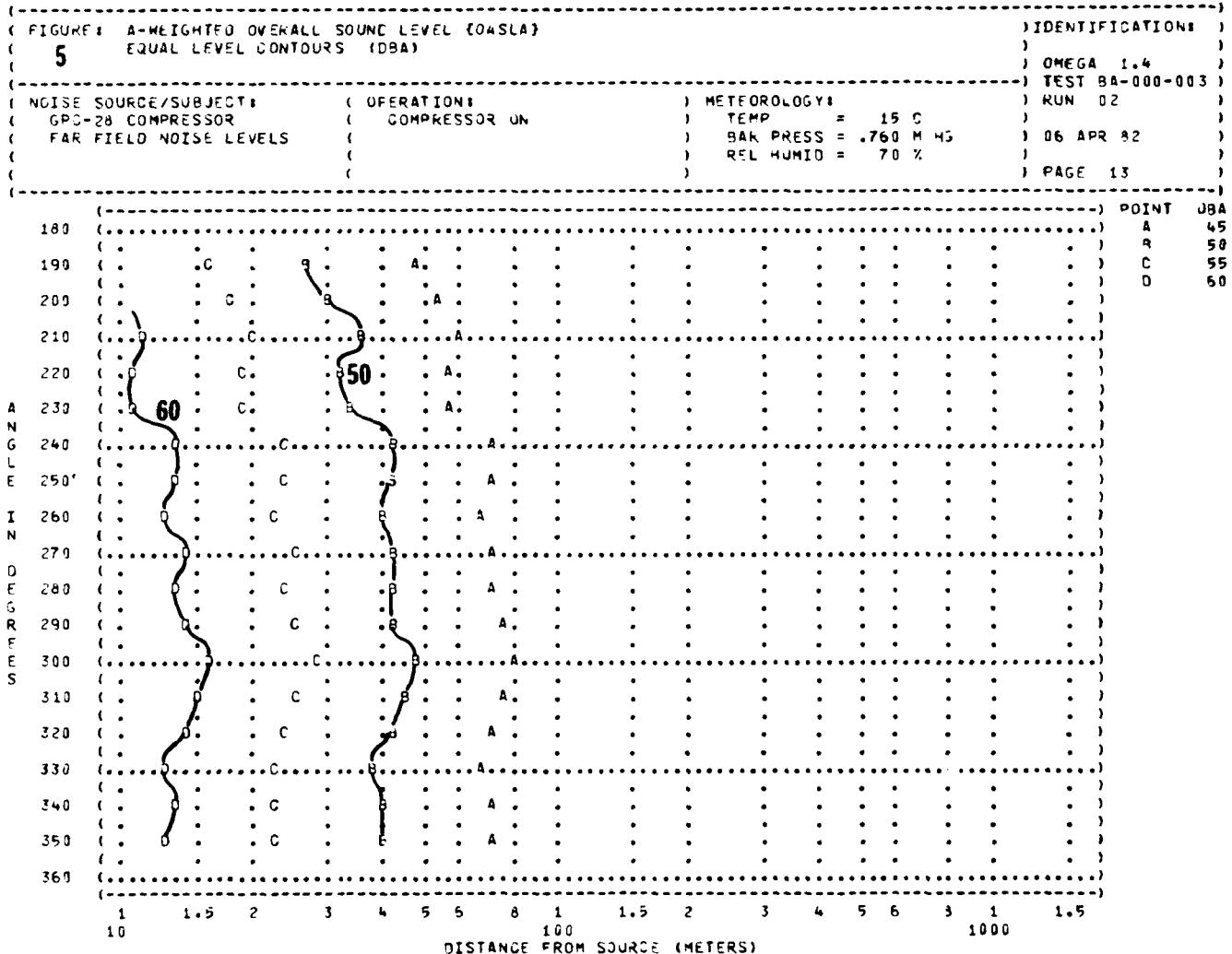


FIGURE 6 PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT)
EQUAL LEVEL CONTOURS (PNLb)

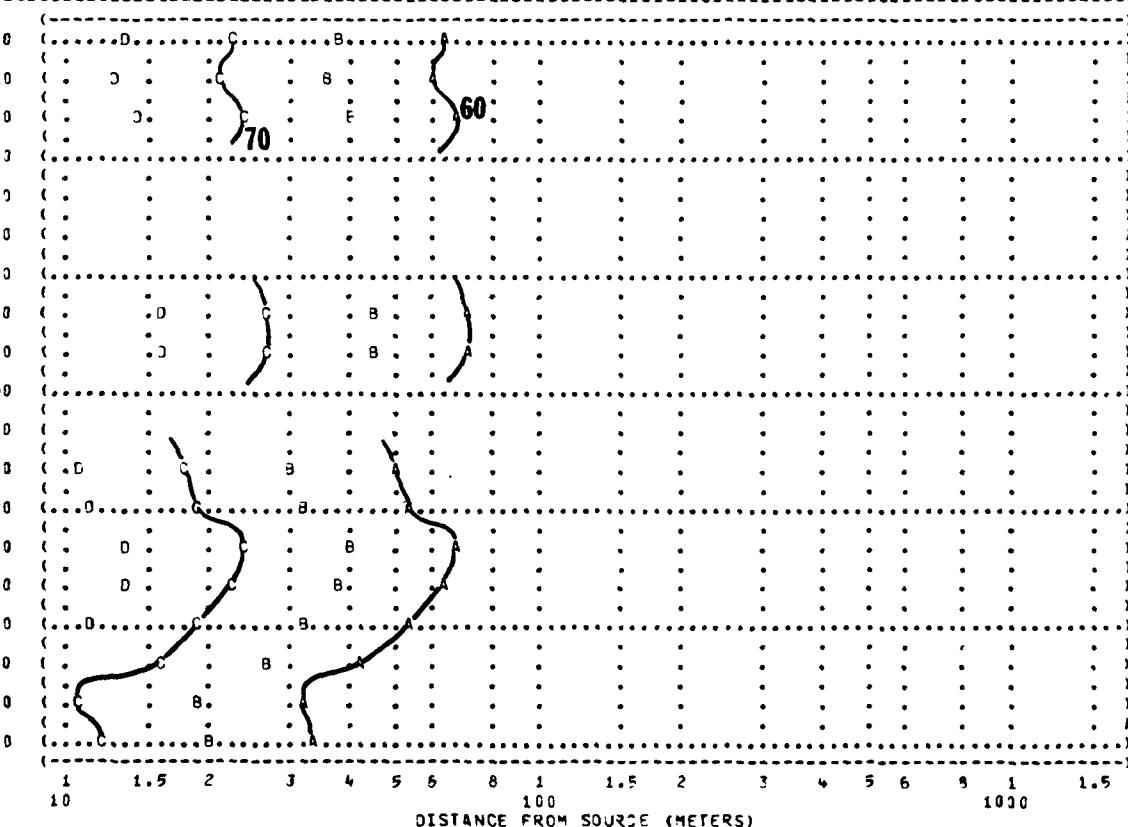
IDENTIFICATIONS
6
) CMFGA 1.4
) TEST PA-900-003
) RUN 01
) PAGE 14

NOISE SOURCE/SUBJECT: GPC-28 COMPRESSOR
FAR FIELD NOISE LEVELS

OPERATION: COMPRESSOR ON

METEOROLOGY: TEMP = 15 C
BAR PRESS = .760 M HS
REL HUMID = 70 %

ANGLE IN DEGREES



(FIGURE 8 PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT)
(6 EQUAL LEVEL CONTOURS (PNL6)

6

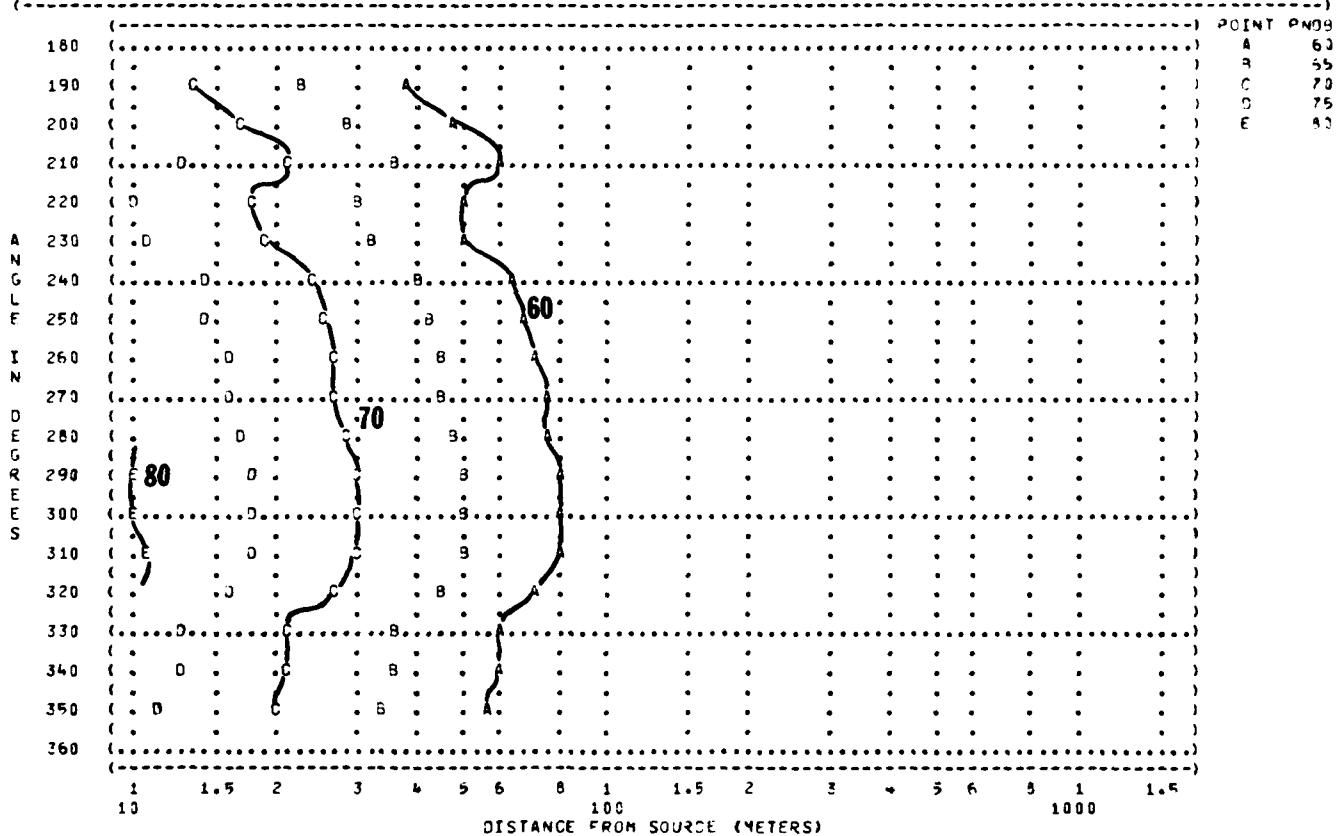
1 IDENTIFICATION 1
1)
1 CMFGA 1.4
1) TEST RA-030-003
1) RUN 02
1)
1) 06 APR 82
1)
1) PAGE 14

(NOISE SOURCE/SUBJECT
(GPC-28 COMPRESSOR

OPERATIONS
COMPRESSOR ON

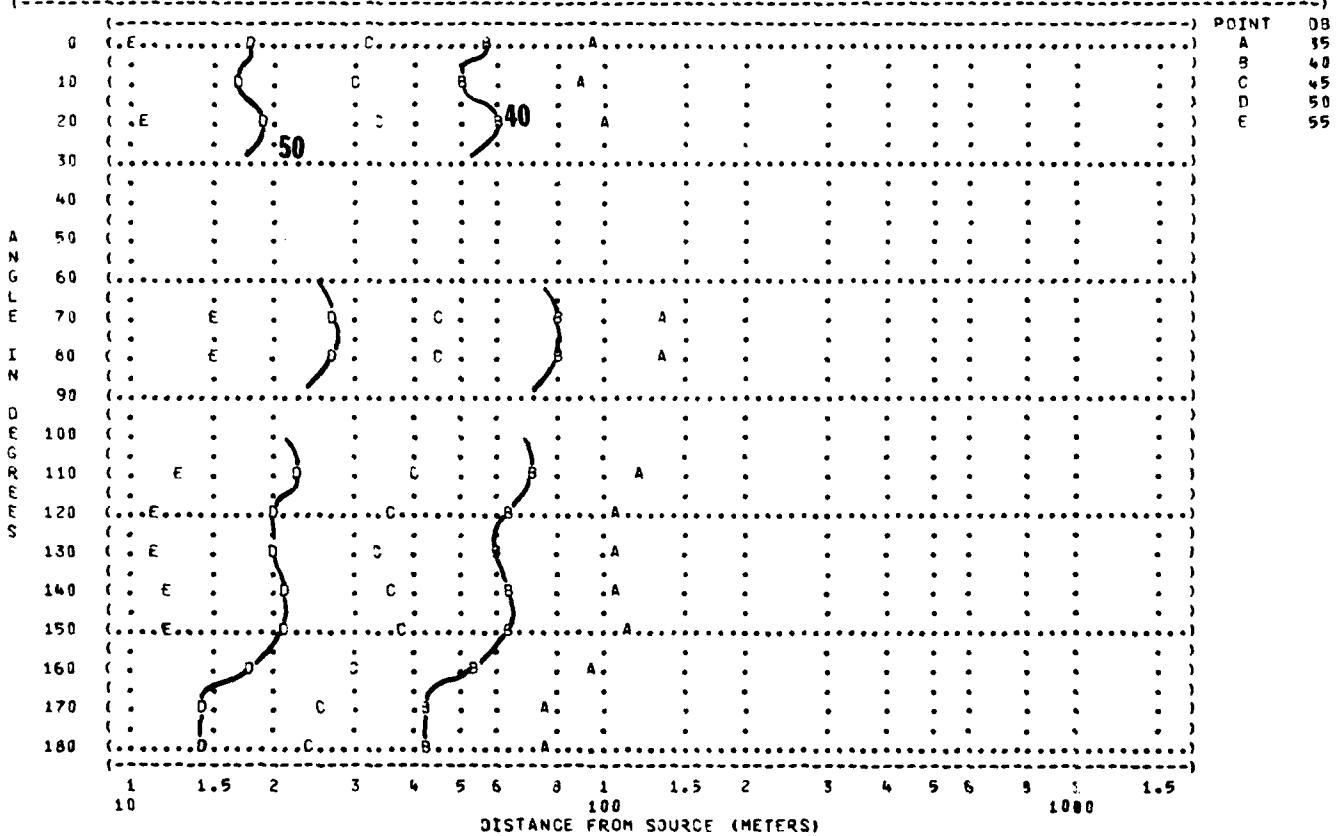
1) METEOROLOGY;
2) TEMP

-----) TEST 48-000-003)
| RUN 92 |
| |
| 11-177-00 |



(-----)
 (FIGURE 1 PREFERRED SPEECH INTERFERENCE LEVEL (PSIL)
 (EQUAL LEVEL CONTOURS (CB)
 (7

) IDENTIFICATION:
) OMEGA 1.4
) TEST BA-000-003
) RUN 01
) TEMP = 15 C
) BAR PRESS = .760 M HS
) 06 APR 82
) REL HUMID = 70 %
) PAGE 15



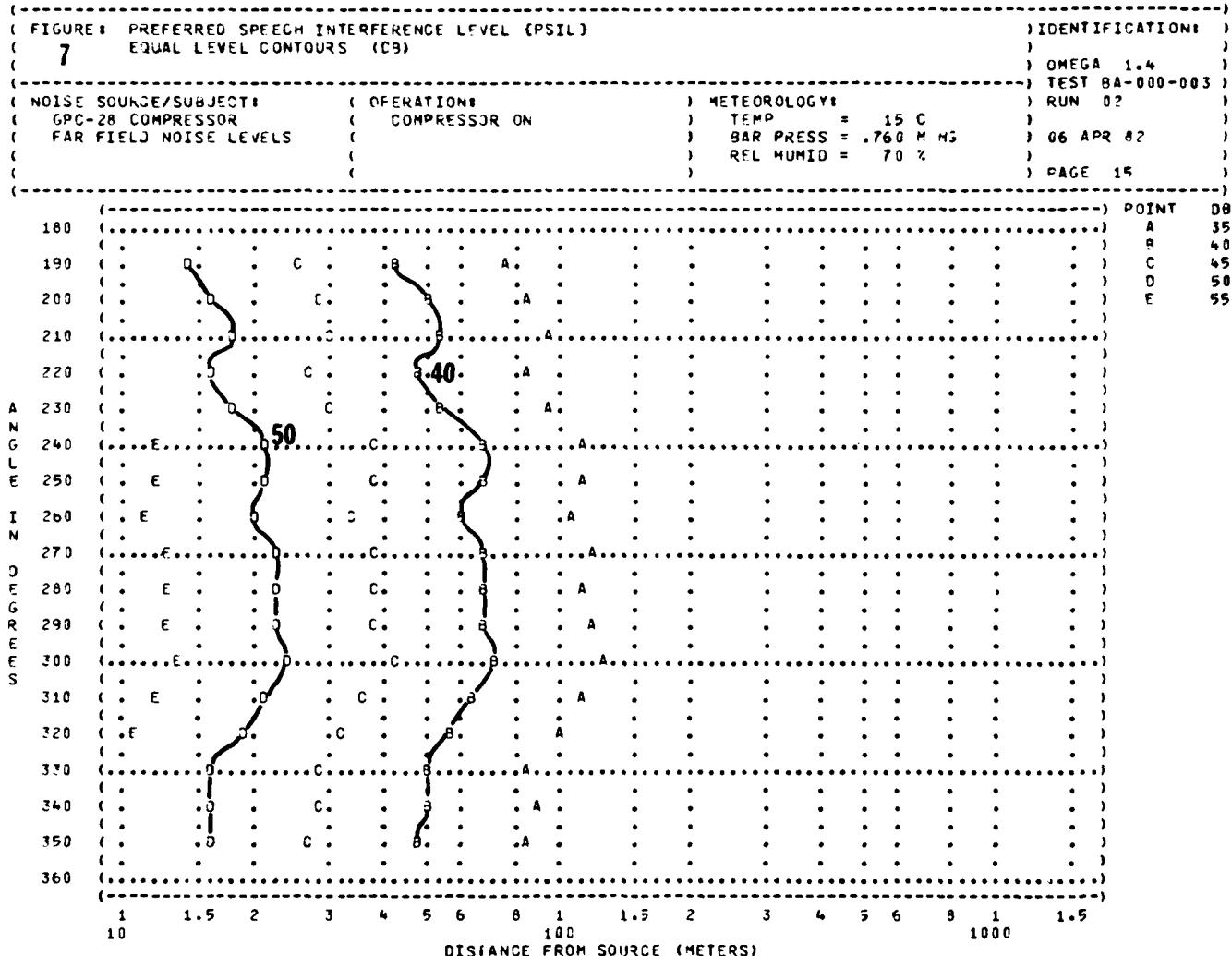


FIGURE 8 MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)

18 ESTATE TIME CONTOURS (MINUTES)

IDENTIFICATIONS 1

1048 G.A.

--> TFSI 94-003-003 1

0< (-----
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E E 120< (-----
S 130< (-----
140< (-----
150< (-----
160< (-----
170< (-----
180< (-----
PERSONNEL MAY BE EXPOSED UP TO 960 MINUTES PER DAY
AT ALL DISTANCES FROM SOURCE EQUAL TO OR GREATER THAN 10 METERS
FOR ALL ANGLES EVALUATED (INDICATED BY < AT LEFT)
UNDER THE FOLLOWING EAR PROTECTION CONDITIONS:
NO PROTECTION
MINIMUM QPL EAR MUFFS
AMERICAN OPTICAL 1700 EAR MUFFS
V-51R EAR PLUGS
COMFIT TRIPLE FLANGE EAR PLUGS
H-133 GROUND COMMUNICATION UNIT

1 1.5 2 3 4 5 6 8 1 1.5 2 3 4 5 6 8 1 1.5
10 100 1000
DISTANCE FROM SOURCE (METERS)

1 1.5 2 3 4 5 6 8 1 1.5 2 3 4 5 6 8 1 1.5
 10 100 1000
 DISTANCE FROM SOURCE (METERS)

(-----
 (FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFK 161-35, JULY 73)) IDENTIFICATION:
 (8 EQUAL TIME CONTOURS (MINUTES))
 (-----
 (NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:)
 (SPC-2B COMPRESSOR (COMPRESSOR ON) TEMP = 15 C)
 (FAR FIELD NOISE LEVELS () BAR PRESS = .760 MM HG)
 (() REL HUMID = 70 %)
 (()) 06 APR 82)
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 180 ()
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 210< ()
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 220< ()
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 PERSONNEL MAY BE EXPOSED UP TO 960 MINUTES PER DAY)
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 350< ()
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 360 ()
 (-----
 1 1.5 2 3 4 5 6 8 1 1.5 2 3 4 5 6 8 1 1.5
 10 100 1000

DISTANCE FROM SOURCE (METERS)

(FIGURE: SOUND PRESSURE LEVEL (SPL)
(EQUAL LEVEL CONTOURS (CB)
(9 31.5 HZ OCTAVE BAND
(-----
(NOISE SOURCE/SUBJECT: (OPERATION: (METEOROLOGY: (IDENTIFICATION:
(GPC-26 COMPRESSOR (COMPRESSOR ON) TEMP = 15 C))
(FAR FIELD NOISE LEVELS () BAR PRESS = .760 MM HG) 06 APR 82
(() REL HUMID = 70 %))
(()) PAGE 16
(-----
(NO CONTOUR DATA---EITHER NO INPUT DATA WERE COMPUTED (=9999.0)
(OR MINIMUM CONTOUR LEVEL REQUESTED IS GREATER THAN MAXIMUM COMPUTED LEVEL.
(-----

(-----)
(FIGURE 1 SOUND PRESSURE LEVEL (SPL))
(9 EQUAL LEVEL CONTOURS (DB))
(31.5 Hz OCTAVE BAND)
(-----) IDENTIFICATION)
(-----)
(NOISE SOURCE/SUBJECT:)
(GPC-28 COMPRESSOR)
(FAR FIELD NOISE LEVELS)
(-----)
(OPERATIONS:)
(COMPRESSOR ON)
(-----)
(METEOROLOGY:)
(TEMP = 15 C)
(BAR PRESS = .760 M HS)
(REL HUMID = 70 %)
(-----)
(RUN 02)
(06 APR 82)
(PAGE 16)
(-----)
(-----)
(NO CONTOUR DATA---EITHER NO INPUT DATA WERE COMPUTED (=9999.0))
(OR MINIMUM CONTOUR LEVEL REQUESTED IS GREATER THAN MAXIMUM COMPUTED LEVEL.)
(-----)

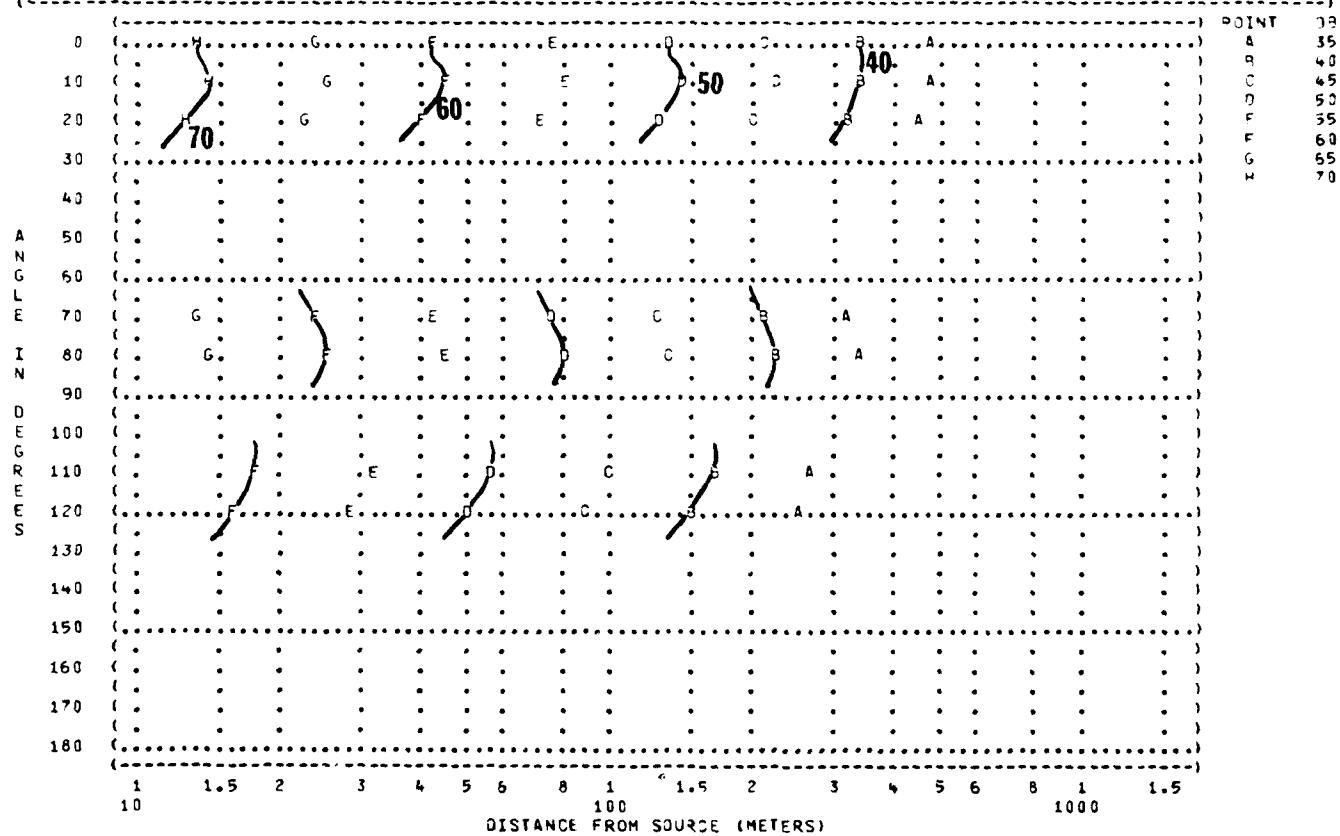
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(-----)
(FIGURE: SOUND PRESSURE LEVEL (SPL)) IDENTIFICATIONS)
(EQUAL LEVEL CONTOURS (DB))
(9) OMEGA 1.4)
(63 Hz OCTAVE BAND) TEST 84-000-003)
(-----)
(NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:)
(GPC-26 COMPRESSOR (COMPRESSOR ON)) TEMP = 15 C)
(FAR FIELD NOISE LEVELS ()) BAR PRESS = .760 M HS) 06 APR 92)
() ()) REL HUMID = 70 %)
() ()) PAGE 17)
(-----)
(NO CONTOUR DATA--EITHER NO INPUT DATA WERE COMPUTED (=9999.0))
(OR MINIMUM CONTOUR LEVEL REQUESTED IS GREATER THAN MAXIMUM COMPUTED LEVEL.)
(-----)

(-----)
(FIGURE: SOUND PRESSURE LEVEL (SPL)) IDENTIFICATION:)
(9 EQUAL LEVEL CONTOURS (DB)))
(63 HZ OCTAVE BAND)) OMEGA 1.4)
(-----) TEST 8A-300-003)
(NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:) RUN 02)
(GPC-28 COMPRESSOR (COMPRESSOR ON) TEMP = 15 C))
(FAR FIELD NOISE LEVELS () BAP PRESS = .760 M HG) 06 APR 82)
(() REL HUMID = 70 %))
(()) PAGE 17)
(-----)
(NO CONTOUR DATA---EITHER NO INPUT DATA WERE COMPUTED (=9999.0))
(OR MINIMUM CONTOUR LEVEL REQUESTED IS GREATER THAN MAXIMUM COMPUTED LEVEL.)
(-----)

(-----)
 (FIGURE 9 SOUND PRESSURE LEVEL (SPL) IDENTIFICATION
 (EQUAL LEVEL CONTOURS (DB))
 (9 125 Hz OCTAVE BAND)
 (-----)

(NOISE SOURCE/SUBJECT: (OPERATIONS) METEOROLOGY:) RUN 31
 (GPC-28 COMPRESSOR (COMPRESSOR ON)) TEMP = 15 C)
 (FAR FIELD NOISE LEVELS ()) BAR PRESS = .760 M +5) 06 APR 92
 (()) REL HUMID = 70 %)
 (-----) PAGE 18)
 (-----)



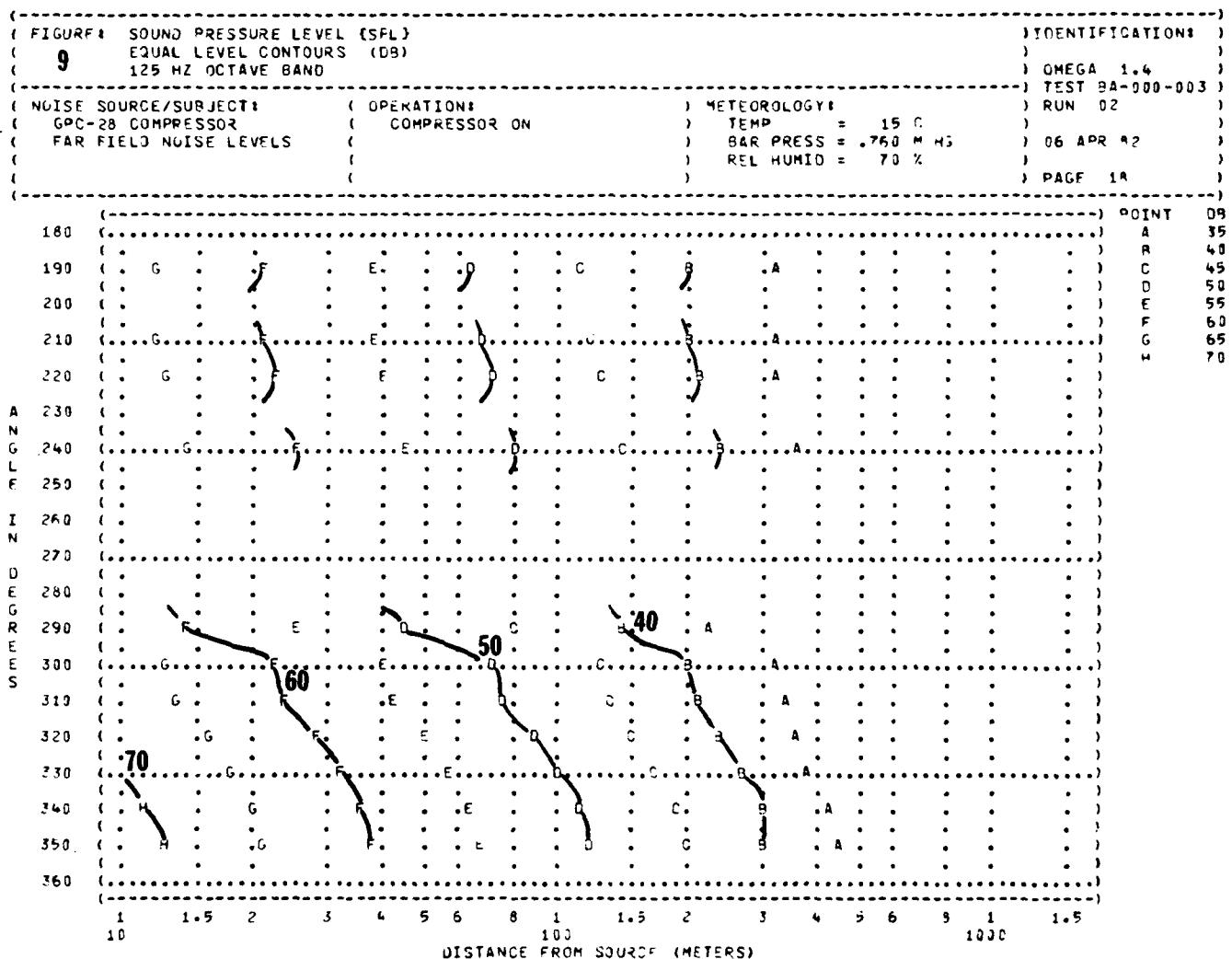
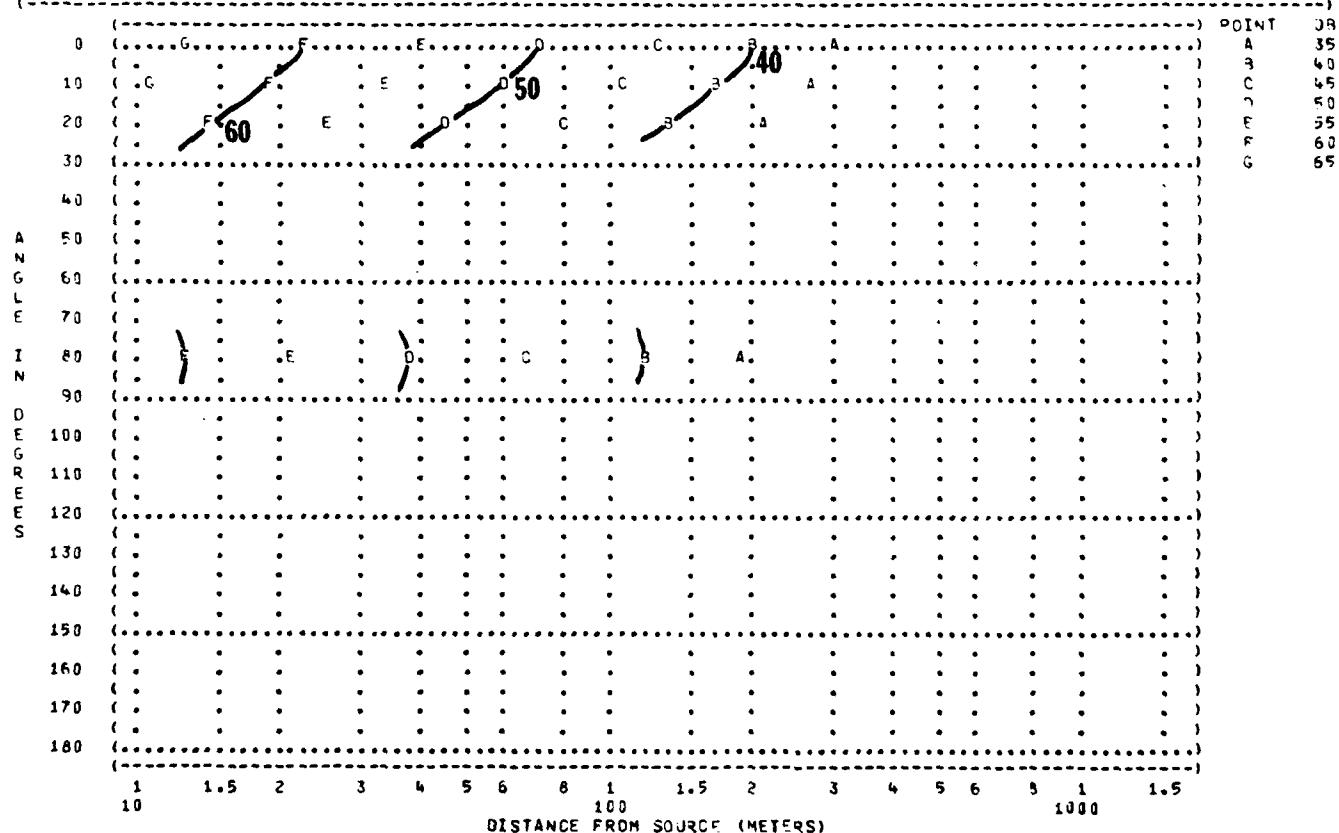


FIGURE: SOUND PRESSURE LEVEL (SPL)
 EQUAL LEVEL CONTOURS (DB)
 9 250 Hz OCTAVE BAND
 IDENTIFICATION
 OMEGA 1.4
 TEST RA-001-003
 RUN 01
 06 APR 87
 PAGE 19

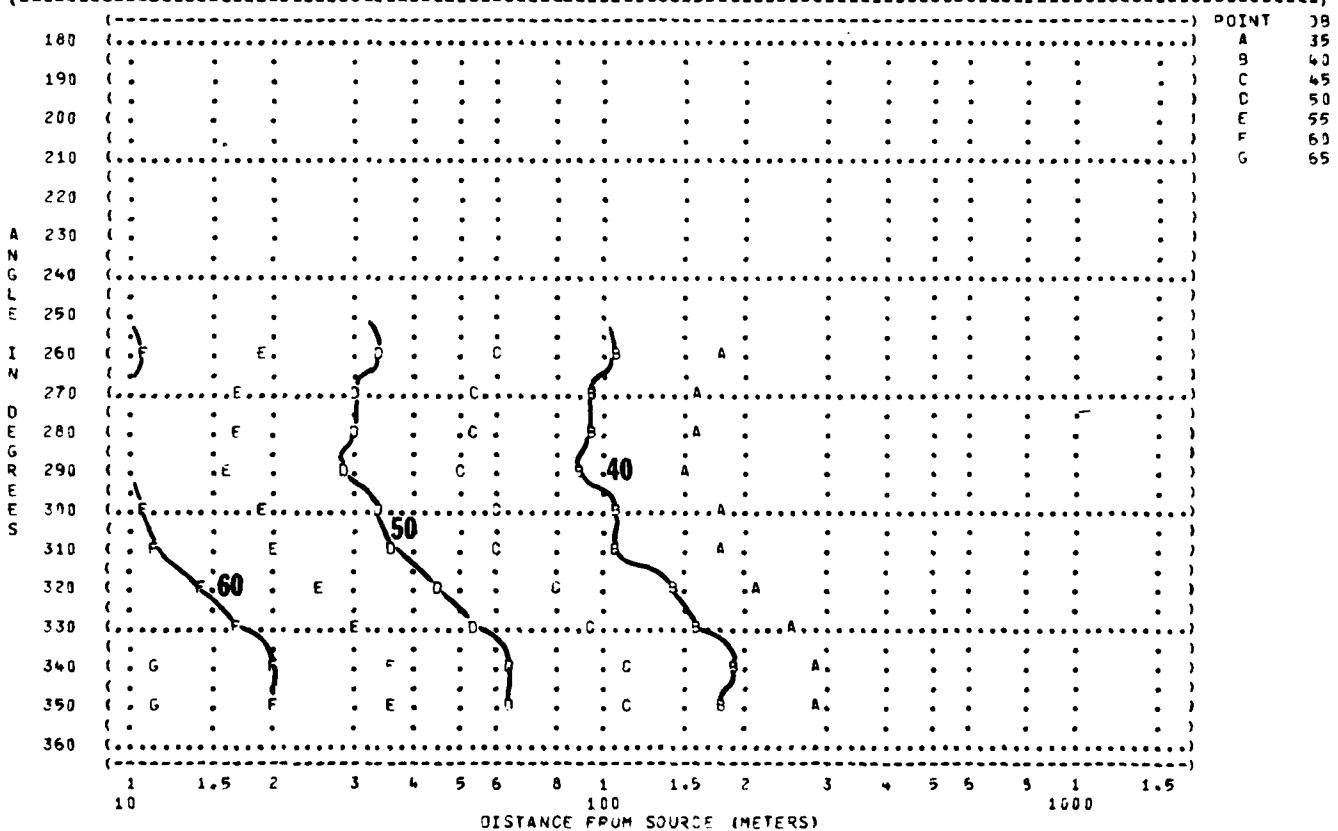
NUISANCE SOURCE/SUBJECT: GPC-28 COMPRESSOR FAR FIELD NOISE LEVELS

OPERATIONS: COMPRESSOR ON

METEOROLOGY: TEMP = 15 C
 BAR PRESS = .760 M Hg
 REL HUMID = 70 %

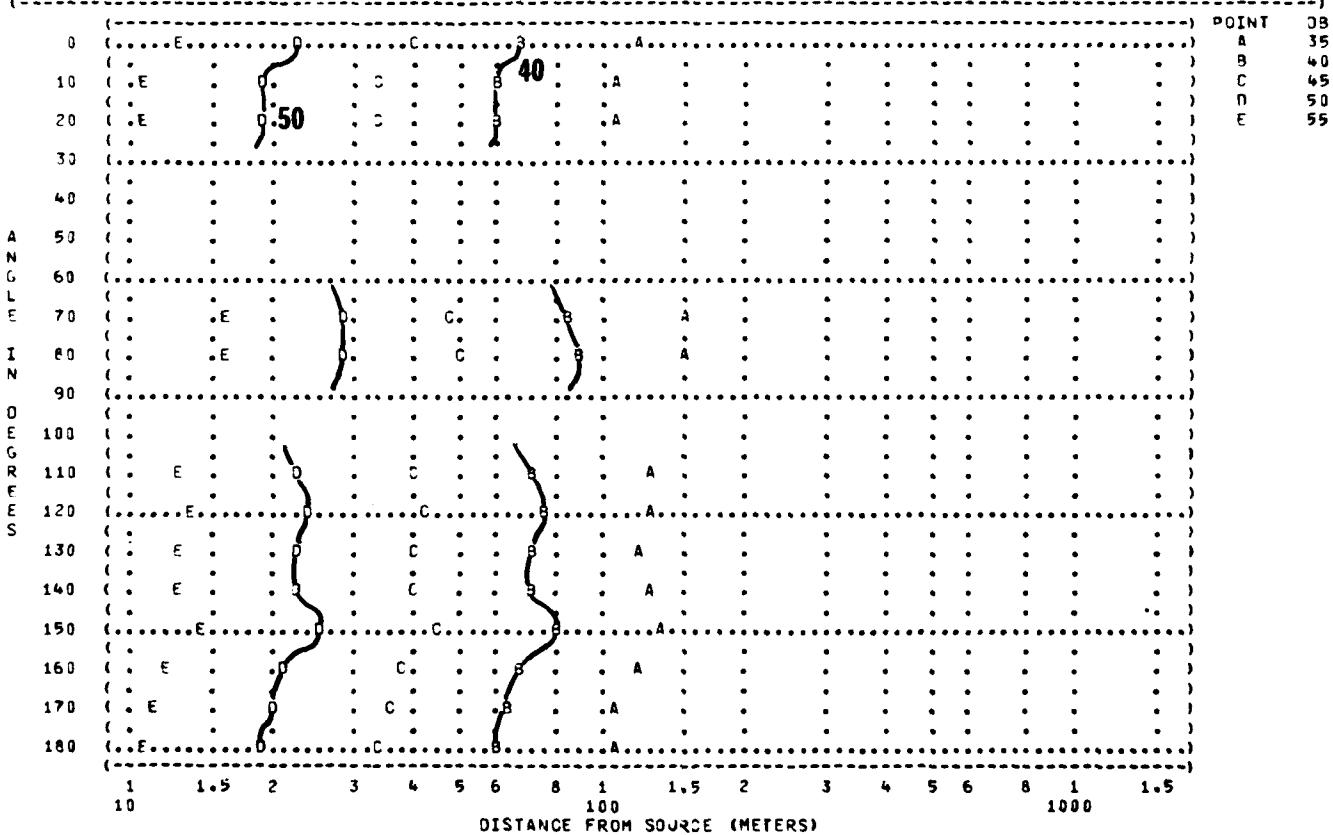


(FIGURE 1 SOUND PRESSURE LEVEL (SPL)
 (EQUAL LEVEL CONTOURS (DB)
 (9
 (250 Hz OCTAVE BAND
 (-----)
 (NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:) IDENTIFICATION:
 (GPC-28 COMPRESSOR (COMPRESSOR ON) TEMP = 15 C) OMEGA 1.4
 (FAR FIELD NOISE LEVELS () BAR PRESS = .760 MM HG) TEST RA-090-003
 (() REL HUMID = 70 %) RUN 02
 (() () () () () ()
 (-----)



(FIGURE: SOUND PRESSURE LEVEL (SPL) IDENTIFICATION:)
(9 EQUAL LEVEL CONTOURS (DB))
(500 Hz OCTAVE BAND)
(OMEGA 1.4)

(-----) TEST RA-000-003)
(NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:) RUN 01)
(GPC-26 COMPRESSOR (COMPRESSOR ON) TEMP = 15 C)
(FAR FIELD NOISE LEVELS () 3BAR PRESS = .760 M TS) 16 APR 82)
(() PEL HUMID = 70 %)
(() PAGE 20)

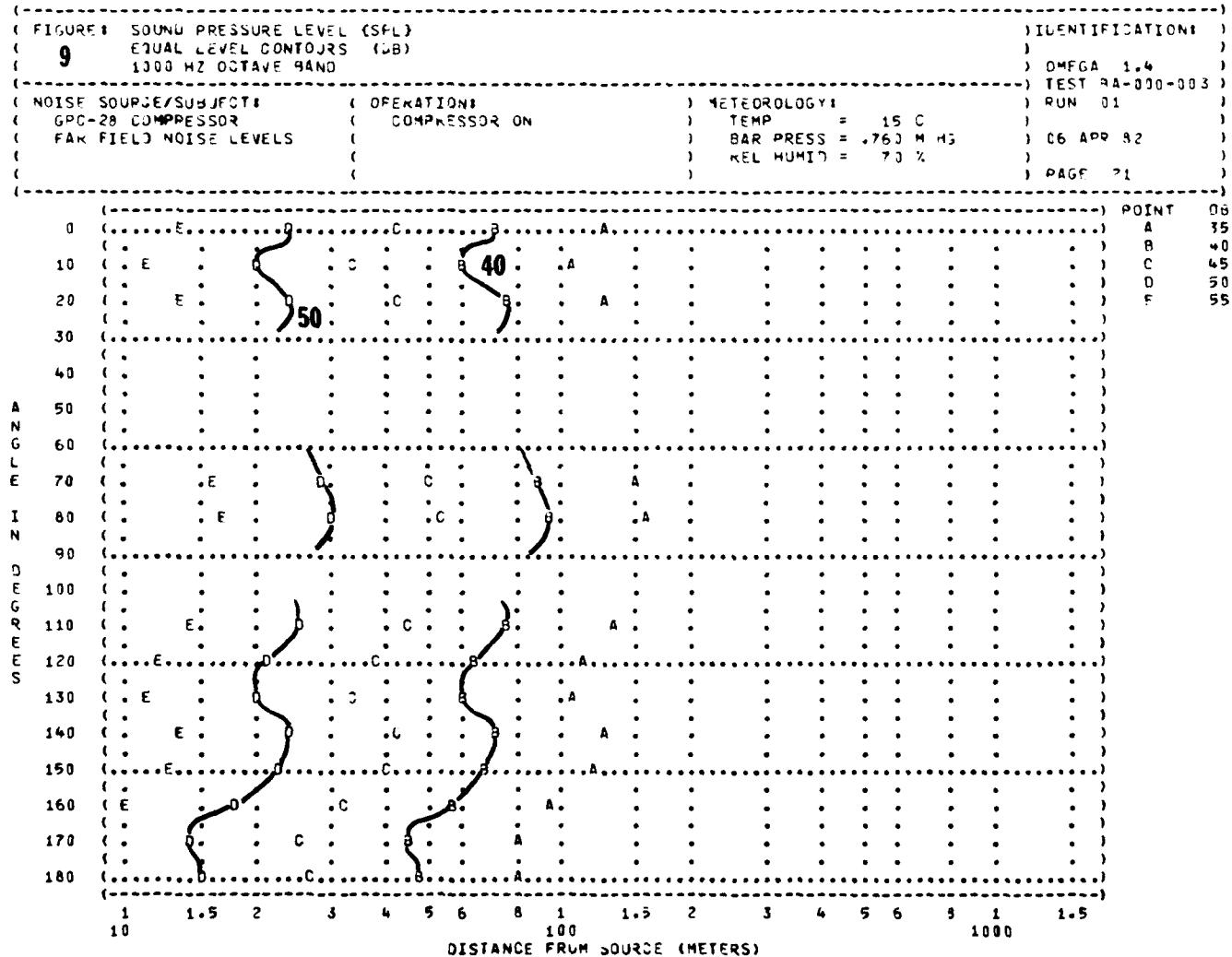


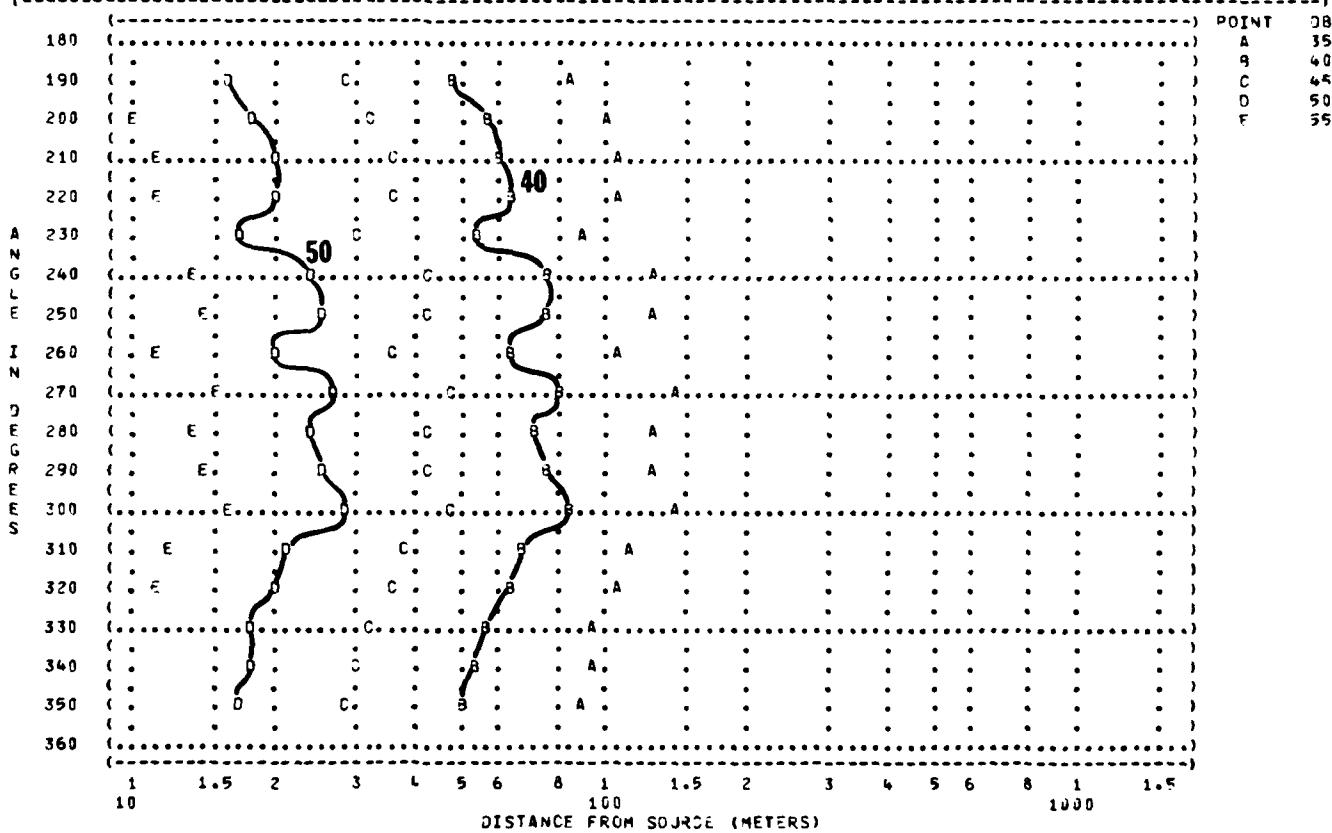
(FIGURE: SOUND PRESSURE LEVEL (SPL)
(9 EQUAL LEVEL CONTOURS (DB)
(500 HZ OCTAVE BAND

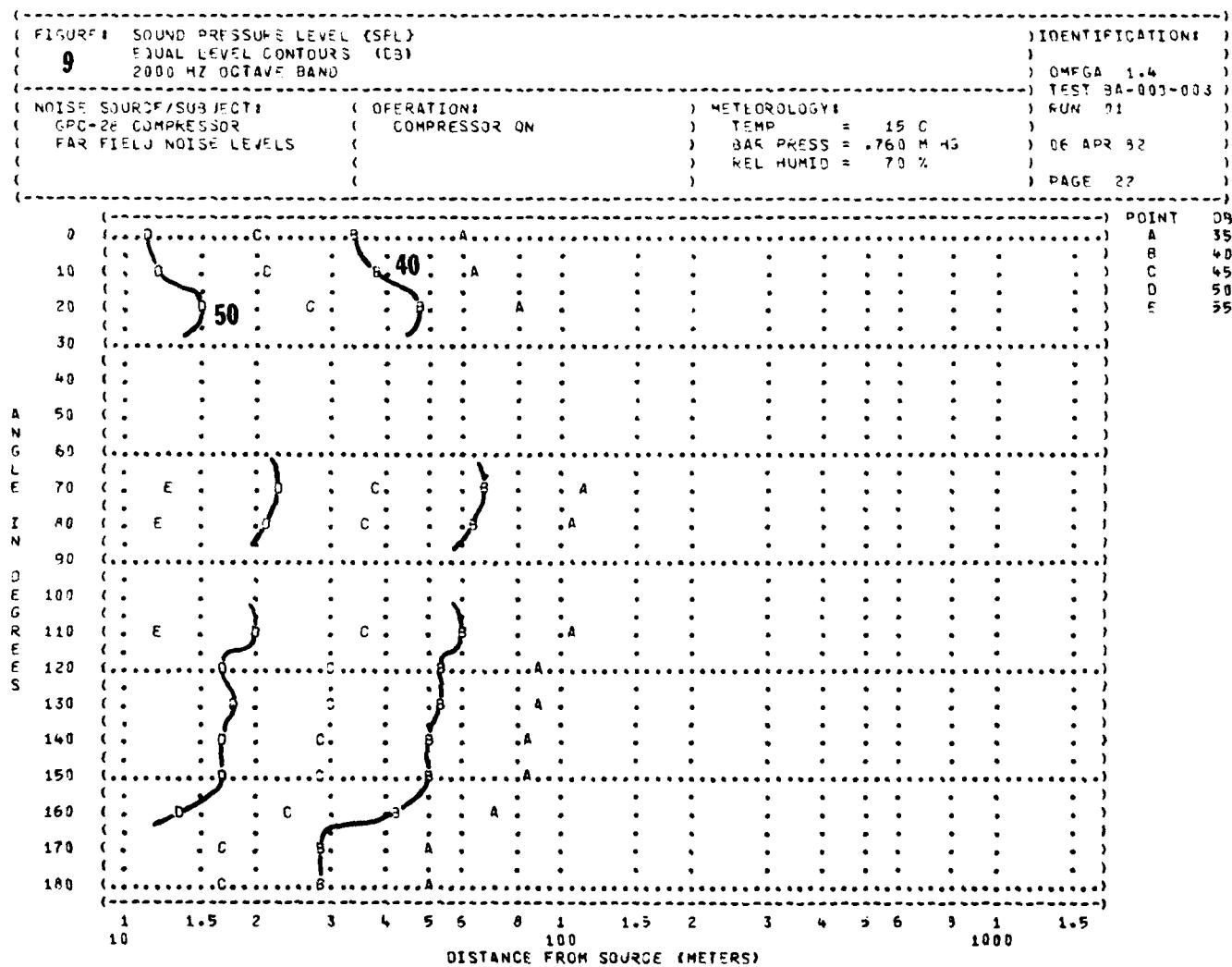
) IDENTIFICATION:)
))
) OMEGA 1.4)
) TEST BA-000-003)
) RUN 02)
))
) 06 APR 82)
))
) PAGE 20)

(NOISE SOURCE/SUBJECT: (OPERATION:
(GPC-26 COMPRESSOR (COMPRESSOR ON
(FAR FIELD NOISE LEVELS (

1) METEOROLOGY:
1) TEMP = 15 C
1) BAR PRESS = .760 M HS
1) REL HUMID = 70 %





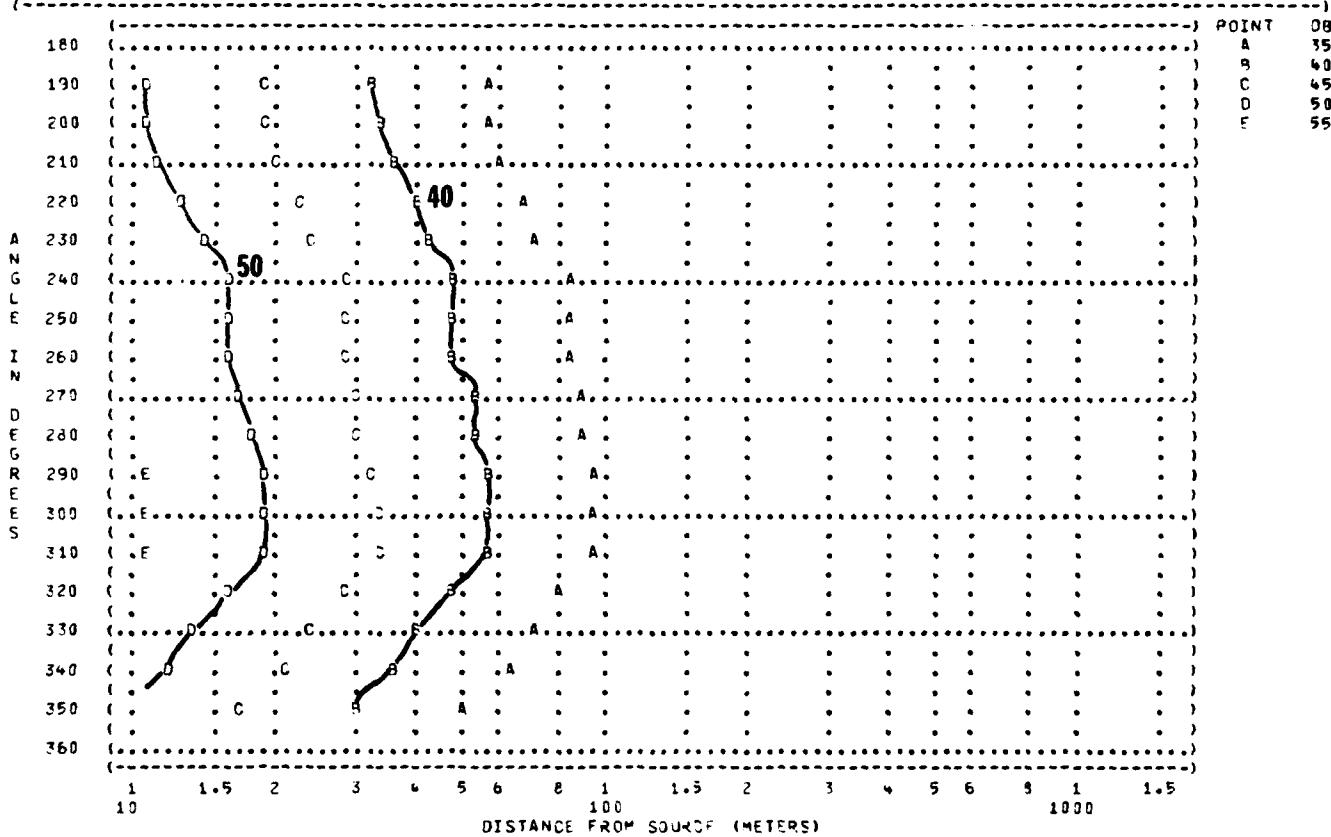


(FIGURE: SOUND PRESSURE LEVEL (SPL)
(9 EQUAL LEVEL CONTOURS (CB)
(2000 Hz OCTAVE BAND

(NOISE SOURCE/SUBJECT: (OPERATIONS:
(GPC-28 COMPRESSOR (COMPRESSOR ON
(FAR FIELD NOISE LEVELS (

1) METEOROLOGY:
1) TEMP = 15 C
1) BAR PRESS = .760 M Hg
1) REL HUMID = 70 %

) IDENTIFICATION:)
))
) OMEGA 1.4)
) TEST BA-000-003)
) RUN 02)
))
) 06 APR 82)
))
) PAGE 22)



(-----)
 (FIGURE 9 SOUND PRESSURE LEVEL (SPL)
 (EQUAL LEVEL CONTOURS (EBC)
 (4000 Hz OCTAVE BAND
 (-----)
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (GPC-20 COMPRESSOR (COMPRESSOR ON
 (FAR FIELD NOISE LEVELS (-----)
 (-----)
 (-----)
 (-----)

) IDENTIFICATION:
)
) OMEGA 1.4
) TEST RA-000-003
) RUN 01
)
) METEOROLOGY:
) TEMP = 15 C
) BAR PRESS = .760 M HS
) 06 APR 27
) REL HUMID = 70 %
) PAGE 73

(-----)

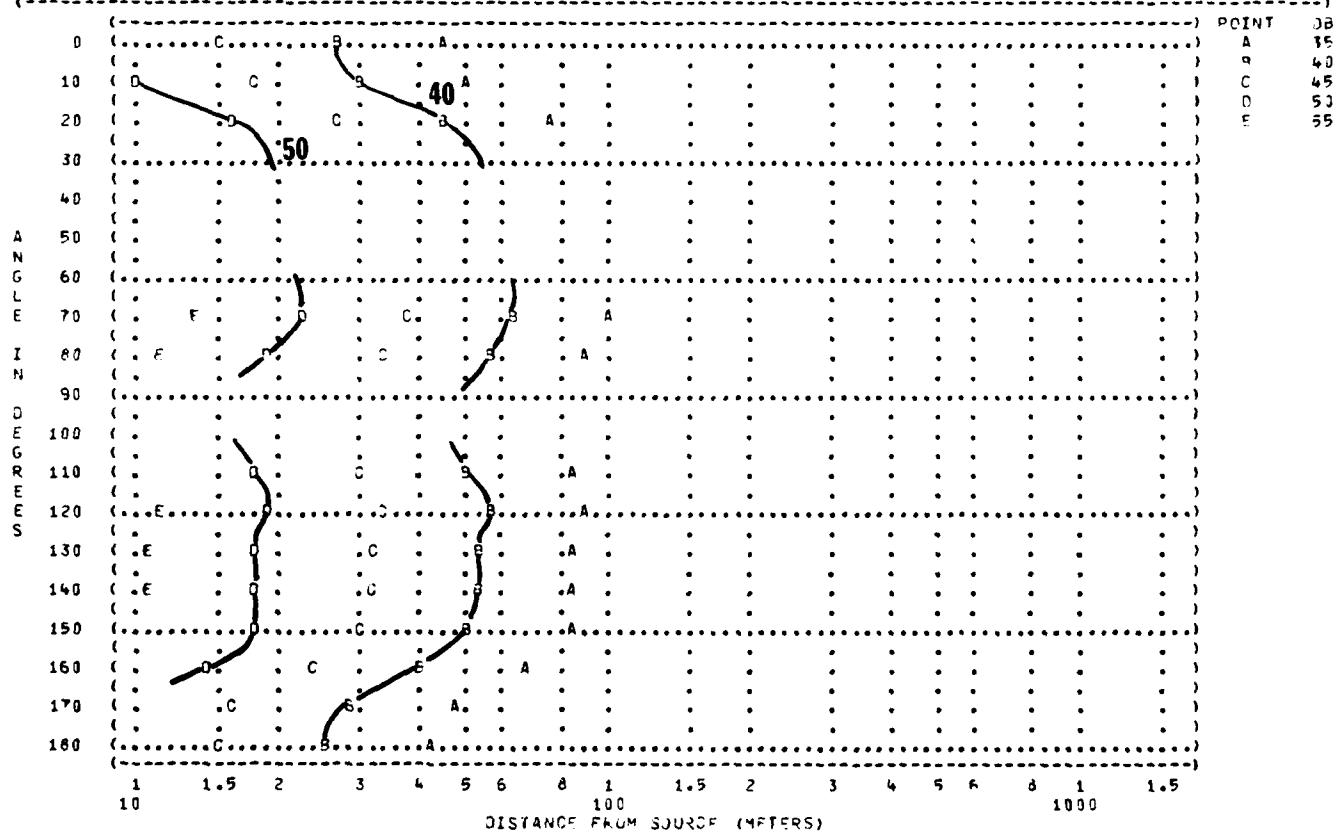
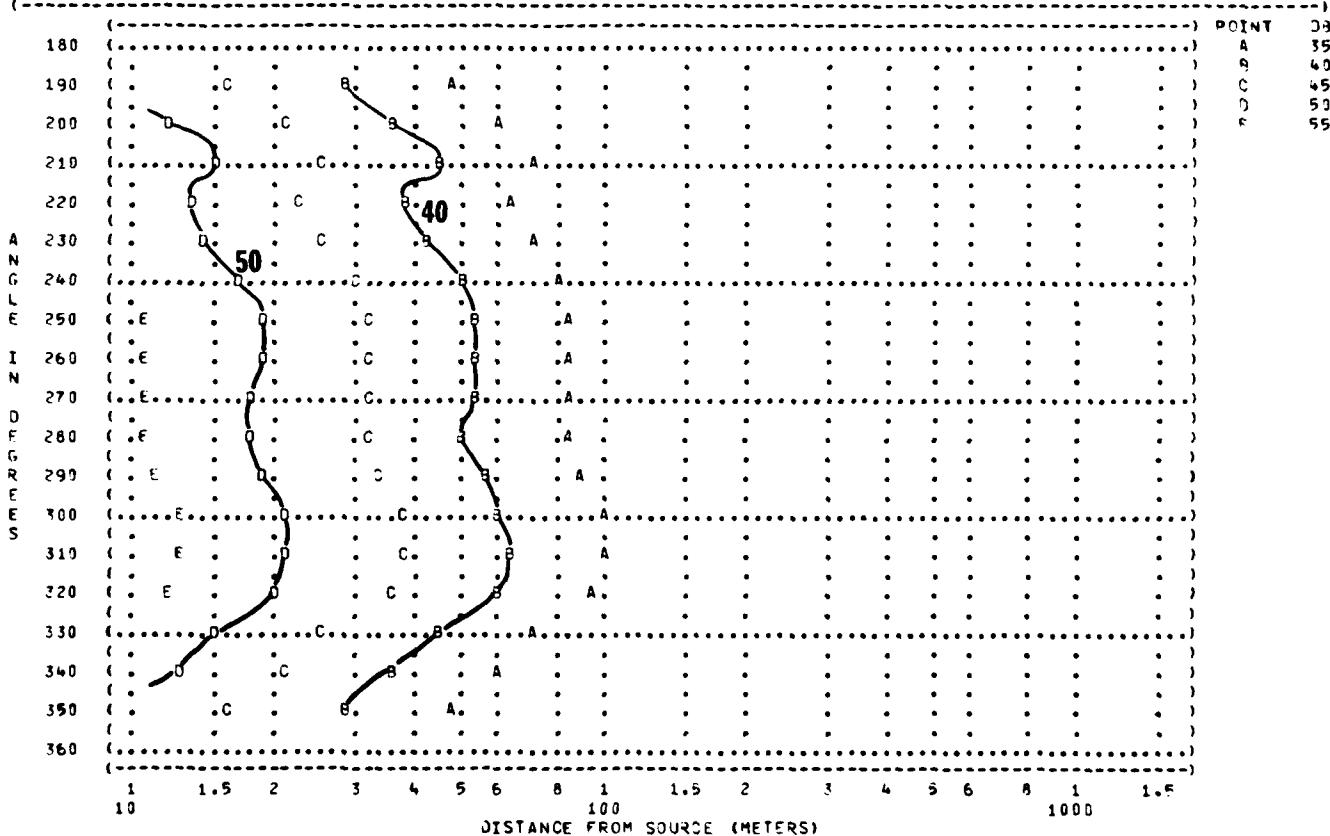


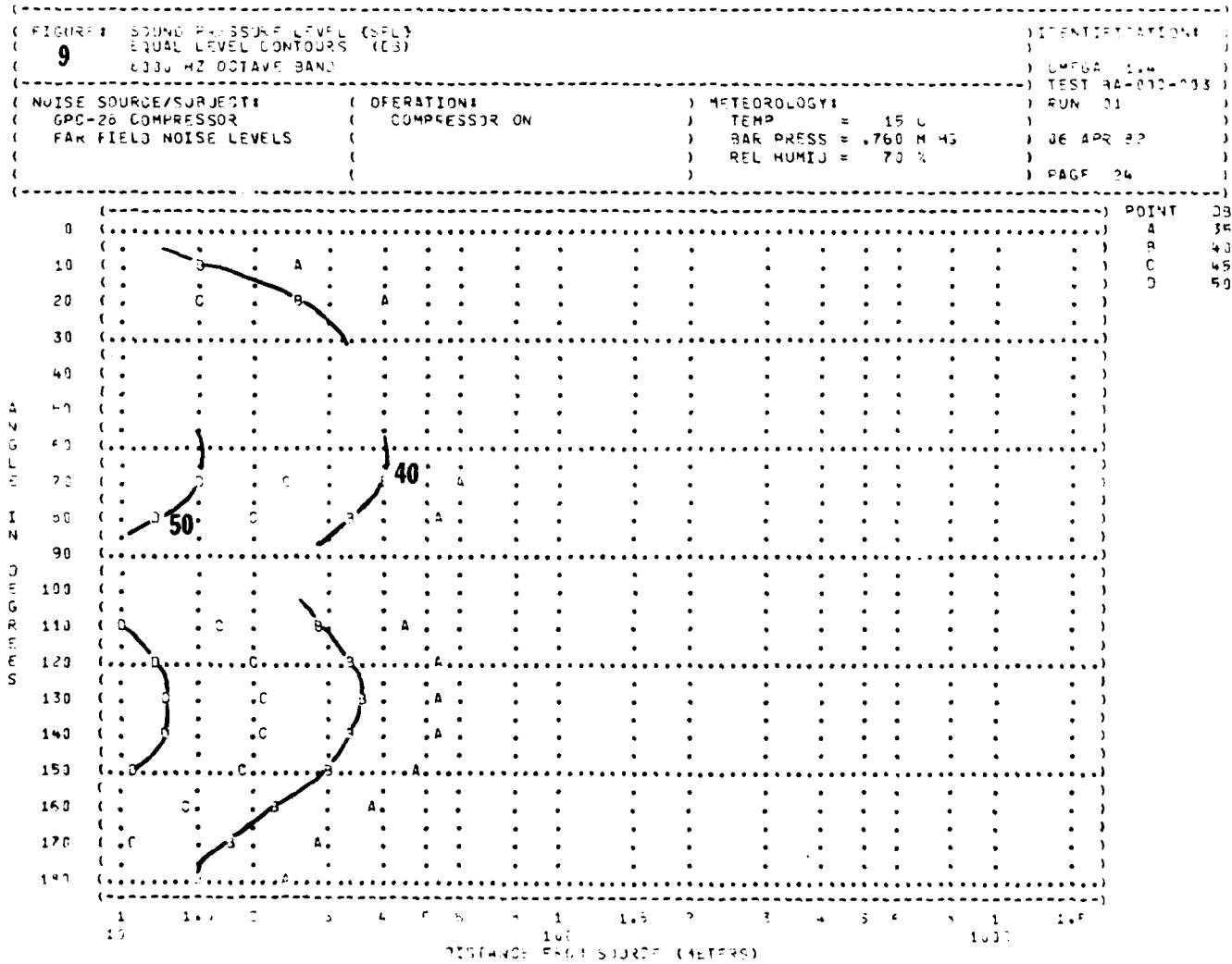
FIGURE 9 SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
4000 HZ OCTAVE BAND

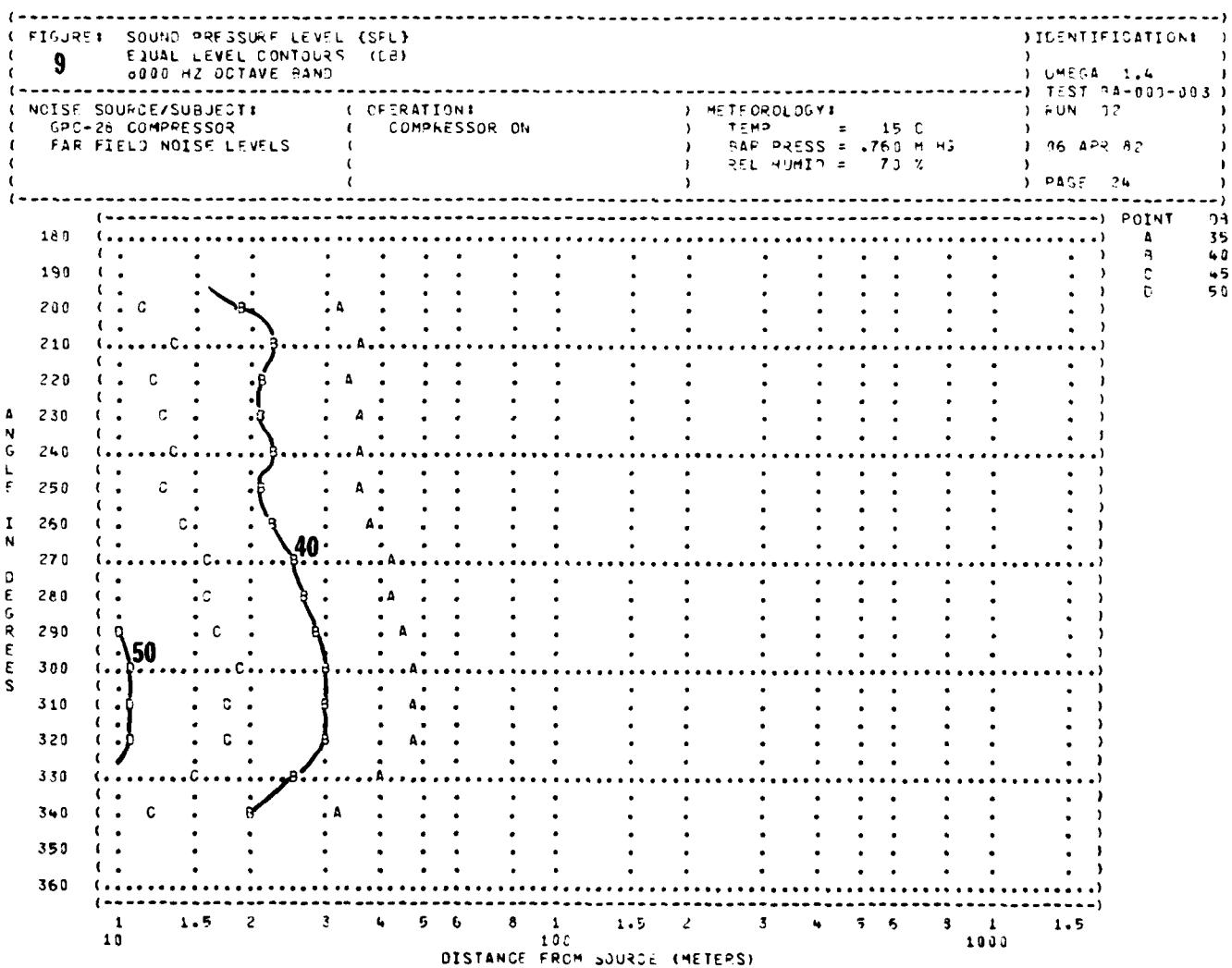
NOISE SOURCE/SUBJECT:
GPC-28 COMPRESSOR
FAR FIELD NOISE LEVELS

IDENTIFICATIONS:
OMEGA 1.4
TEST BA-000-003
RUN 02
36 APR 92
PAGE 23

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HS
REL HUMID = 70 %







END
DATE
FILMED

7 82

DTI